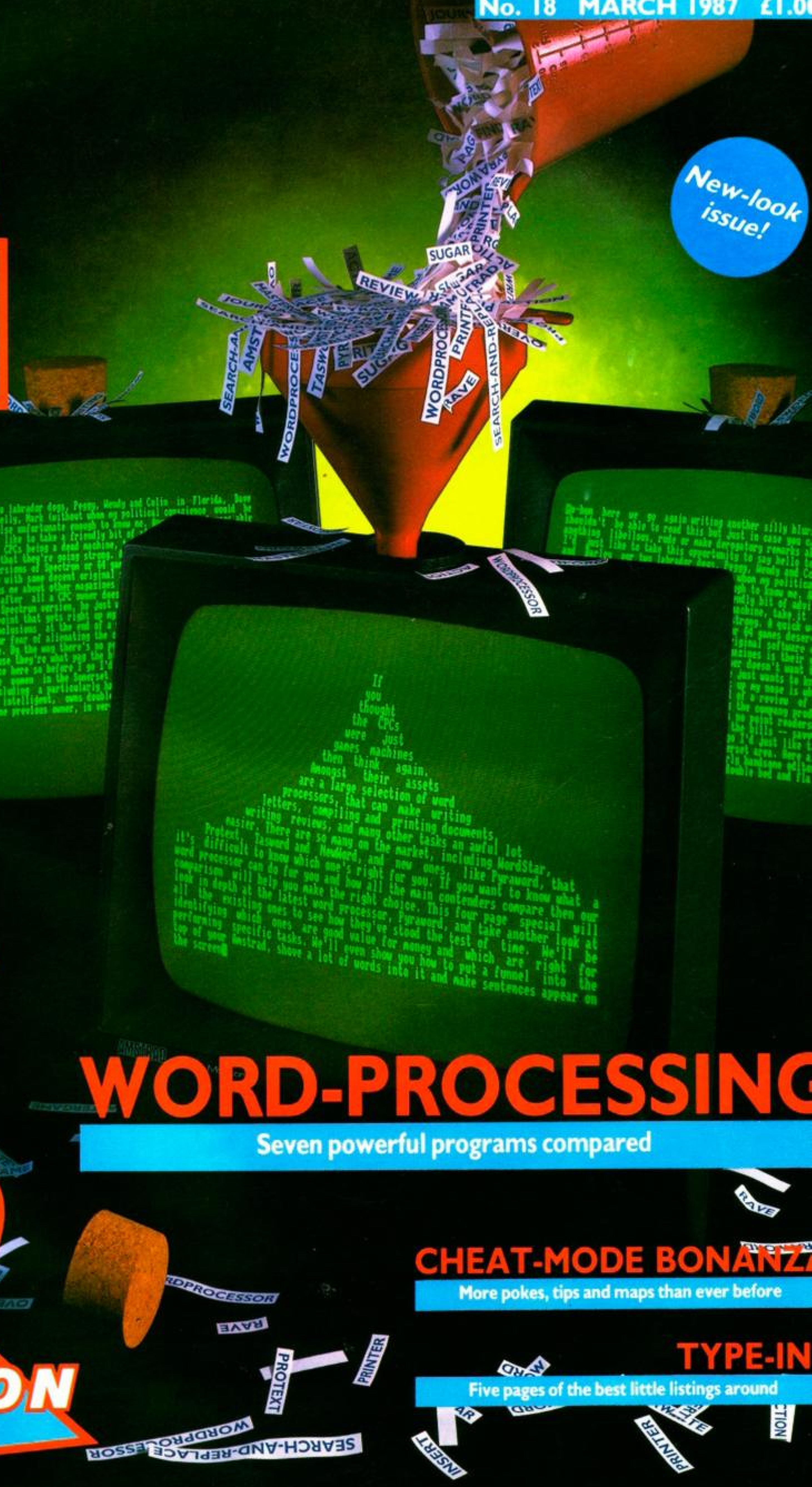
BRITAIN'S ONLY MAGAZINE DEVOTED TO THE AMSTRAD CPC 464, 664 AND 612
No. 18 MARCH 1987 £1.0

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AMSTRAD ACTION

THE MOULD-BREAKING MAGAZINE FROM FUTURE PUBLISHING

New-look issue!



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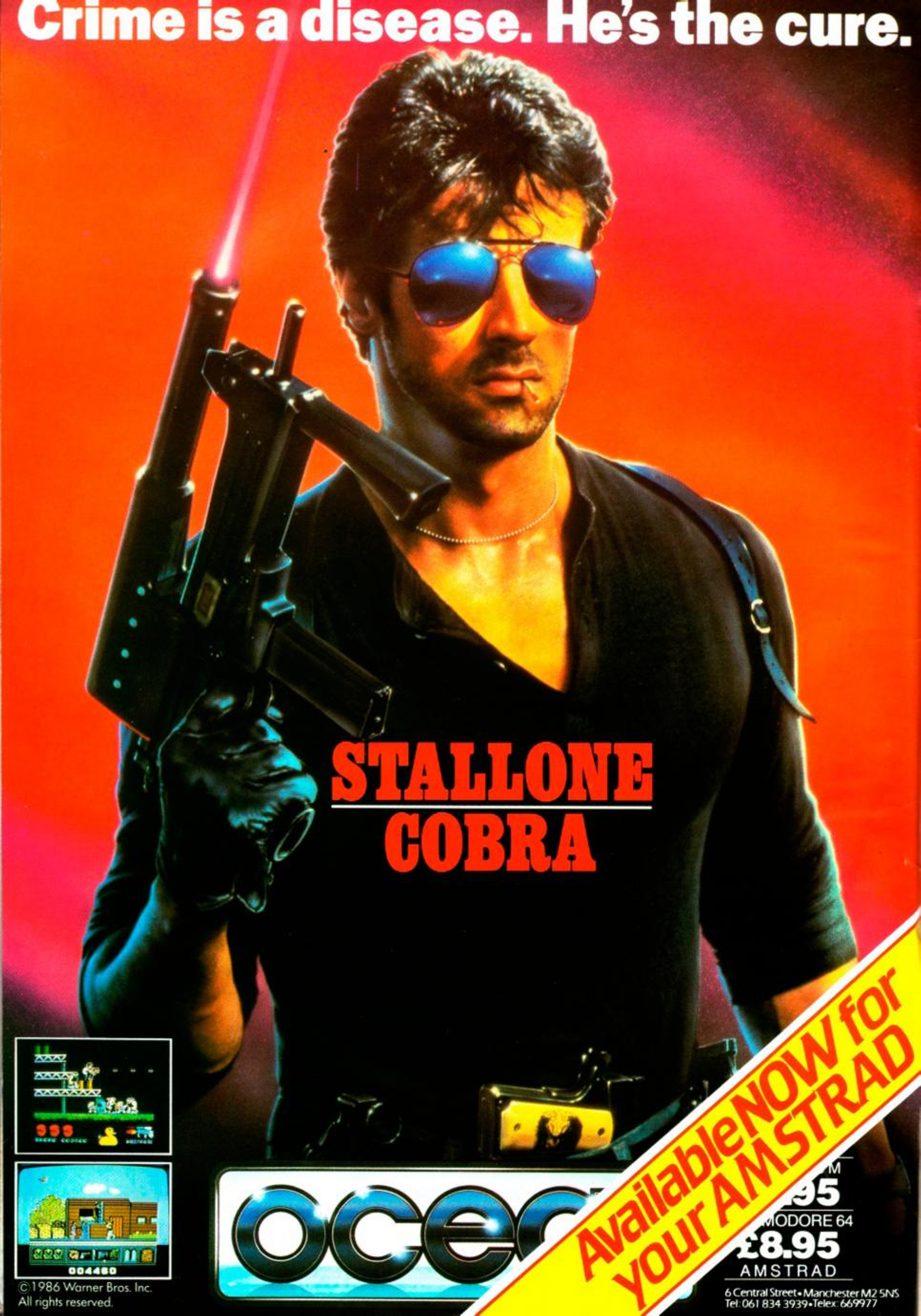
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The new-look AA

As you read through this issue of AA you'll notice a few changes – nothing drastic, but little improvements that we hope will make the mag better than ever. There are several new features within some sections including the 'Helpline' in *Reaction*, a 'Hackers Only' spot in *Hot Tips*, and on the back page *Rear View*, which we hope will leave you smiling as you start looking forward to next month's issue.

There's also been a change to our game ratings boxes; for a fuller explanation turn to the *Action Test* intro page. And Trevor's been busy brightening up pages and generally giving sections a fresh new look. You'll notice the new AA Rave and Mastergame logos, which we promise not to change again (not for a while anyway). Nothing's perfect, though, and it's your magazine, so if you have any changes or suggestions you think could improve the mag then let us know.

As well as a new look we reckon that number 18 has something for everyone: five pages telling you everything you need to know about the leading word-processors, a whopping eight pages of *Cheat Mode*, a great bouncing-ball Mastergame, lots of lovely listings, problems solved in *Problem Attic*, and info from the experts in *Hot Tips*. If you can't find anything amid that lot to interest you then you'd better check that you actually own a CPC.

Well, we've finished with this issue, so while you get stuck into it I'm off for a drink and a couple of hours' rest before we start on the next one. Cheers!

Bob

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Double Druid

Last issue we printed a routine to transfer the version of the game *Druid* from our Christmas Avalanche tape to disc. Well, horror of horrors, or surprise surprise, there was a slight mistake. Apologies if users of some CPC models spent frustrating hours trying to get it work.

Type in these three lines instead of the first three lines of the previous listing, then type in the rest of the printed listing – that should do the trick.

```
|TAPE.IN : LOAD"DRUID"
SAVE"DRUID.BAS"
MEMORY &1FFF
```

Hotline

We'll be by the phones from 2 to 6 on Monday afternoons for you to contact us with queries regarding *Type-Ins* and *Cheat Mode*. We deal with an ever-increasing number of calls as best we can, but we can't be on two phones at once. So we apologise if you've been asked to 'hold,' 'call back later' or 'try next Monday,' but the technical editor is only human and we do try to get around to you all eventually. We'll help you if we can, but as the saying goes – the difficult we do immediately, the impossible takes a little longer.

Runners-up

I know it's hard to believe but *AA* was recently a runner-up for an award. The awards were The Clives, presented at an industry bash called the InDin. The award for which we had the dubious distinction of being runner-up was 'Publisher in Software Services of Hyped Editorial and Diverse Sentiments.' Our one grain of comfort is that one of our competitors succeeded in winning.

Famous last words

Remember in December's *Problem Attic* RpM said of Read Error D: 'I tried desperately to attain this error message but failed to do so.' It seemed 'The only way to get this error is to program it deliberately.'

Well guess what – in the middle of a particularly long news story what should pop up and crash the whole thing? No prizes for working out what, but the why is a little more complicated. RpM thinks a routine tried to jump to a memory address that turned out to be in the spaghetti junction of roms, interfaces and assorted gadgets that are busy breeding on the back of his 464.

Tarzan Comp

It has to be said that in terms of quantity this was not one of our most spectacular competitions: the jungles produced grand total of six entries. However in terms of quality, competitors' effort and judges' enjoyment it was the best. The digitized yells were amazing, particularly the winning one, which quite honestly is better than anything you've ever heard at the movies.

It comes from **Charles Joynson** of Bradford, who must have lungs like an elephant and the voice control of an opera singer. I only wish you could hear his effort, which used the sound digitizer type-in from AA 16 – it nearly broke all the windows and my eardrums. To him goes the first prize of Martech's *Tarzan* game, a loincloth, a giant python, a chimp mask and a cuddly toy monkey.

Just missing out was an effort by **Niall Dunne** from Waterford, Republic of Ireland, who was ably assisted by his cousin and younger brother producing excellent background jungle noises, sounding just like howler monkeys. The other winners, who all deserve a copy of the game (which is on the way) and a pat on the back (which is more difficult to post), were **Sunil Tailor** of Feltham, **PR Cripps** of Leicester, **David Earl** of North Shields, and **Alex Tsouklas** of Harrow.



REACTION

As usual, the AA postbag is full. The post office has even alloted us a new postcode to help cope with it – TA11 7PY . This implies two short rules to increase your chance of seeing your letter in print: please keep it short, and keep it more readable than the postcode.

A telephone number is helpful in case there are questions. And we're sorry we can't send individual answers – not if we're still to have any month left over to publish a magazine!

And howcum hardly nobody these days ever puts a date at the top of their letter any more?

Eternal life

Do you think software houses should give an infinite-lives option with their games?

A good example is *Batman*. When I bought it, I spent all my time exploring the first 50 rooms or so before I ran out of lives. Not much for £8. You then published an infinite-lives poke which enabled me to spend many interesting hours completing the game. This still leaves the choice of playing without the poke if I want to.

To be able to finish a game in this way seems to me better value than having a number of unfinished ones, left because it's so frustrating going over the first part again and again without making any real progress. Let's face it: many of the games are not that interesting in the first place.

Steve Seager
Royston, Herts

NO! The whole point of a game is to have a challenge. What fun would football be – real football, not the electronic imitation – or golf or marbles, for that matter – if you knew there was an easier way to win? And suppose you didn't even have the fun of hacking to discover a cheat mode. (Another reason why AA policy is to publish only original ones.) There are always a few months between the birth of a new game and someone's poke being published.

We say it again

I too have had trouble with a new Quickshot II Plus and can only concur with R Williams' letter in the Christmas issue that this joystick is *not* fully compatible with the 464 computer. On several games the menu screen would not hold while options were chosen, and in other games characters could not be made to go backwards.

Maybe the auto-fire circuitry is responsible, although I would never use this facility, for the sound chip in the Amstrad could well be damaged.

W Maher
Liverpool

This is our last word on the subject:

Don't buy a Quickshot II for the Amstrad CPC.

In the other eye

I read with great interest Matthew Clements' letter in the Christmas ish ('A poke in the eye' – about someone sending my *Spindizzy* poke to another magazine), because I was rather cheesed off with Carl Jones. (My friend showed me the pokes – I didn't buy that mag.)

I wrote to the mag in question and pointed this out. They gave the unbelievable reply that Carl Jones could have come up with the same poke. If you ask your tech ed how I did this poke, you will see that it is a fairly unique way of doing things. He even copied the same for-next loop variable, t. I sent the mag another letter pointing this out, but of course they never printed that.

Well, thanks to you and Matthew Clement for letting me get that off my chest.

Tim Gilbert
Whitby. Yorks

Lost in timespace

What ever happened to *Fornax* and *GSath*, the follow-up to *Marsport*?

Barry North
Littlehampton, W Sussex

They never came out of imaginary hype-space.

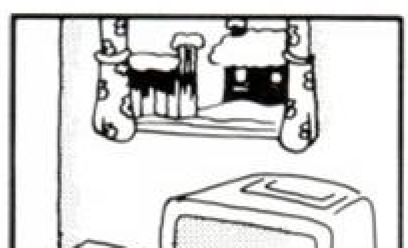
In April you said Mastertronics' *Kik Start* would be converted by the time I read it. Well, that was months ago, so when will it be released?

Also, a month ago I ordered *Geoff Capes Strongman* from AGF Mail Discount, which I haven't received, but they took money from my account. So please could you get in touch, AA?

John Gilbertson
Anfield, Liverpool

Mastertronics say they had to revise their list of games planned for conversion, and this one – you'll be sad, John – was scrapped.

By now AGF should have sent you your mail-order game; if not, contact us again. AGF's ad did not promise 7-day delivery, so the normal 28 days would apply.



"IT'S A WOOLLY WARMER FOR ARNOLD"

Pen direct

I have just formed a penpal link-up club called Direct, and would like to know if there are any readers of *Amstrad Action* that would like penpals. If so, describe yourself and the penpal you are looking for, post it to us with your address, a second-class stamp and 10p (this covers sorting and the envelope), sit back and wait for about a week and a half, then open the reply and start corresponding.

Robert White
'Direct'
1 Sunnybank Street
Ossett
Wakefield, W Yorks
WF5 8PE

Image problem

After reading your review of the Mirage Imager (September) and seeing ads for it claiming it could transfer and run *any* program, I decided it would be a worthwhile investment: it meant I could save £5 off any game I bought and still have it on disk.

Except for the occasional connection problems it worked fine, until I tried to transfer *Dark Star* and *Gauntlet*. *Dark Star* will save and reload without trouble, but when I run it the keyboard will not respond. *Gauntlet* is worse: the Imager won't even cut in, and the computer just crashes when I press the red button. I realise that separate levels have to be loaded in with *Gauntlet*, but having the main part of the game on disk saves a lot of time when loading.

Am I doing something wrong, or are the ads stretching the truth about the Imager's capabilities?

Steven Osborne
Bristol

Gerry Bassingthwaighte at Mirage loaded the Gauntlet *disk onto a 6128, froze it with the red button on a mark-3 Imager and started the game running again with R – no problem. It must be your 6128, your tape, your mark-2 Imager or a combination. Mirage will upgrade older Imagers to mark 3 for £5.95.*

Technical editor RpM says one problem with Imager is that it does not store information from the CPC's sound chip, which also acts as input-output port detecting keyboard or joystick presses. Some games store a bit there. The Multiface Two from Romantic Robot handles it with no problem.

Senior artist

I was well pleased with the results from the *Artist* program by Simon Watson (Type-ins, AA16). I have found that graphics from *Melbourne Draw* can be loaded into it, but not vice-versa. This is very useful: I can sketch on *Melbourne Draw* with its advantage of crib mode for accurate positioning and then add refinements with *Artist's* easier options.

Your AA gives me a lot of pleasure added to my 6128, keeping a young 67's mind from getting stagnant.

RB Thomson
Andover, Hants

Bob says he is still not going to reveal his age.

Bell before order

I have played *Back to School* and *School Daze* on my friend's Spectrum. Can you get these for the Amstrad? Also, last year mail-order companies were advertising *Spy Hunter*. I went into my local store to buy this game only to find that it had not as yhet been released. A year later I am *still* waiting. Please could you tell me if it is going to be released?

Dean Lawton
Doncaster, S Yorks

The first two are not available in Amstrad versions. Amsoft has the rights to Spy Hunter *but has not released it.*

General advice about mail-order firms: ring first to check that what you want is available. As you have noticed, they sometimes advertise software on the basis of what their suppliers have promised. AA makes a point of requiring telephone numbers in such ads.

Censor: Selwyn sore

CRL's game *Dracula* was recently awarded a '15' certificate by the British Board of Film Censors. This basically means that people under 15 are going to rush out and buy a copy to see what all the fuss is about.

This is obviously a hype to increase sales of a second-rate game. If the British Board of Film Censors were so concerned about censoring games, why didn't *Sam Fox Strip Poker* or *Animated Strip Poker* get '15' certificates?

Neil Selwyn
West Lulworth, Dorset

We suggest the censors invent a 'silly sexist drivel' certificate.

Sub-sysop needed

My bulletin board in South Humberside has a lot of callers, a large percentage of whom are Amstrad owners. This board has an Amstrad section to cater for these users, and used to have a sub-sysop, Phil Harling, who helped run the section. I need someone to take over from him.

The role is to call regularly and update things – a bare essential if it is to work. What the person has to do is send an editorial page every two or three weeks, maybe each month, say via Prestel mailbox and I will convert it to a form suitable for the board (turn a few mailbox frames to one long text file for viewing on the BB). Also, the person has to look after the message base of the Amstrad section, deleting any out-of-date messages, or ones with swearing.

It would also help if the person had some technical knowledge in order to answer problems that users may be having. (Being a BBC user I cannot help Amstrad users.)

Unless I get a new sub-sysop, the Amstrad section will have to close.

The board can be reached on (0724) 86 3290 using 1200/75 or 300/300 baud, 24 hours a day. Or you can reach me on Prestel 724 842 953.

Stu Chadwick
Scunthorpe

Famous famous Firebird

I'm rather fed up hearing about the Firebird loading system not working on 664s – another complaint about *Thrust* in issue 16. I own a 664 and also *Thrust, Harvey Headbanger, Spiky Harold* and others. I can state quite categorically that I never have any problems loading them. I have noticed, however, that they load at a lower than usual volume. The loading system is really quite clever and I suggest 664 owners take the following action:

► Ensure your tape recorder is up to scratch. Clean the heads and, if possible, check the alignment. (I suspect the recorders are the main culprits for the problem. I use a Matsui 7200.)

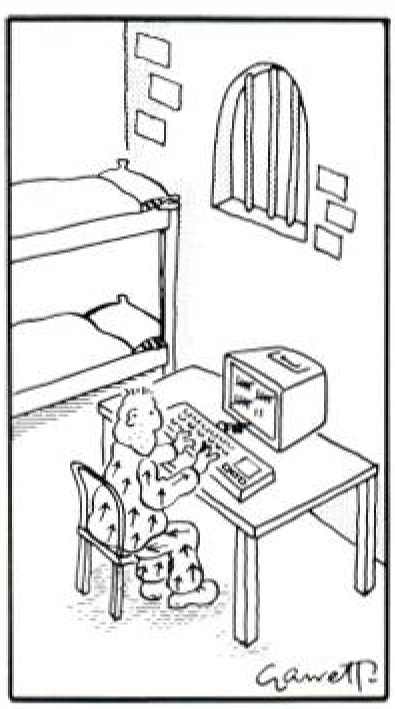
► Load the tape. After a while the screen will say `Loading 00` and the address will change. Watch it carefully!

► If at any time it says `Rewind tape` stop the tape at once, adjust the volume (downwards) and start the tape again. If the address goes past the one that failed to load without loading it, stop the tape and try again. When you have found the correct volume, it will say `Loading xx` again and carry on.

► Note the correct volume and remember it for future!

So, Mr Bennett, try it and I hope you have many happy hours playing *Thrust* – it's brilliant!

Carl Poland
Wallasey, Merseyside



Broadcasting

Me and my mate Bungle have decided to form a user club. It's called the Bunglesoft Biscuit Club and it has free membership. We will help people out with tips on most of the best games, and every full moon we will send a newsletter and sometimes even free software to our members. The club is open to anything in the universe as long as it isn't dead and as long as it's a nutter and owns an Amstrad of any kind. We will even send freebies such as digestive biscuits and chicken sandwiches to anyone who joins.

To become a member, send an sae. (Note to AA: we are dead serious about this club.)

Bungle & Co
The Boldings
Astley Abbotts, Shropshire

Is Astley Abbotts a monastery or an asylum?

Truth filters in

Help! I have *Infiltrator* on disk and for some reason it keeps crashing. Just before I get to the base all the controls pack up and go haywire. I lose altitude, the engines pack up, all the warning lights flash and finally I crash. Have I got a dud game, or is there some illness which is destroying all the disk versions? Please print my letter and help me; I have written to you three times before and had no reply.

Paul Gerfen
Pinner, Middx

It probably isn't a bug – you just aren't getting the game right, Paul. Try the tips in Cheat Mode 16.

Poker of the press

Me and a few friends have decided to have a go at running a magazine consisting entirely of pokes, maps, adventure solutions for Amstrad games. Also we hope to include some quick and interesting type-ins. To help us do this would any readers interested in subscribing or sending in any pokes etc please write to my address.

Is it against the law to use readers' pokes from other magazines?

Jonathan Hoad (age 14)
22 Thorncliffe Rd
Summertown, Oxford
OX2 7BB

Good luck with your publishing venture, Jonathan. Please send us a copy. As we often say in Cheat Mode and Ed-lines, yes, it is against the copyright laws to use material from other publications without permission. We wouldn't do it to you.

Helpline

Here at *AA* we constantly get requests for help on all manner of subjects from how to get the seventh part of the Batmobile in *Batman* to how to use the routines in the CP/M rom. Just lately the enquiries have been flooding in by the bucket, hardly leaving us time to write the magazine. Ever resourceful, we decided we might as well get you talking to each other as well.

The Helpline is the same in concept as the Lords and Ladies of Adventure found in the Pilgrim's section, but you can offer help on absolutely any subject to do with the Amstrad. You can offer help on games, pokes, programming, hardware, serious software – anything. Not only will it give you the chance to help out other readers, but to make contact with users interested in the same area of computing as yourself.

Here are a few ideas of the sort of thing you could help people with.

- **Games experts** could offer help on games they've completed to those still grappling with a puzzle.
- **Poke experts** could offer advice on how to find pokes.
- **Serious users** might give advice on how best to use packages at home or in business.
- **Programmers** might help those just starting out with the Amstrad and trying to cope with the manual.

The possibilities are endless. You can offer to help on subjects as generalised as, 'Dear Sir, I'd like to help anyone having trouble loading a tape,' or as specific as, 'Dear Sir, I'd like to help anyone trying to access the floppy disk controller.'

If you want to become part of the Helpline all you have to do is send us your name, address, phone number and subject with which you want to help, on a postcard or the back of a stuck-down envelope. The reason for the stationery requirement is that it will help the administration of the section if we don't have them confused with *Reaction* letters, *Cheat Mode* offerings or anything else. Send to: **'Helpline', *Amstrad Action*, The Old Barn, Somerton, Somerset, TA11 7PY.**

Who knows? This could be the start of something big and some new friendships.



Progs 2, tape 0

I bought your Christmas 1986 issue complete with demo tape. I cannot get the tape to load on my 464. I get a 'Read error B' message and instructions to rewind the tape. And before I get the error message I am told to insert a remote lead into the tape socket. I didn't know what that referred to. If any of you at the Old Barn could enlighten me, I'd be obliged.

I'd like to defend the listings in *AA*. The listings do work. I typed in *Gigo* from October's issue and it works a treat. Max and I have had hours of funny, witty conversation. Mrs Johnson's daughter (letter, issue 16) must have made a typing error.

Are there any more versions on the market of *Boulderdash*? I?ve spent many hours with this and would like to know particularly if there is to be a construction kit.

J Young
Stockton-on-Tees, Cleveland

Let us know, J, if you have any problems with the replacement tape we brightened you with. 464 owners don't need remote leads. As for Boulderdash*: not yet, and we don't know of any further plans for it.*

Remember me with a duffy tape called Christmas Avalanche. When loaded it sends me a greeting 'Read error a'. Or to make a change, one part of side two prints 'Read error b'. All in all I managed to obtain three programs in all: *Drumkit*, *Gigo* and *Druid*.

Not to be beaten I typed in the super *Speed Checker* (Problem Attic 16) to see if my pinchwheel was up the creek, but the printout told me it was ±0.4 and ±0.5 in all, so it's not the fault of the deck on my Amstrad 464. My guess is that I was unlucky enough to get a poor-quality tape, so I'm not blaming the programs.

Your mag as usual is very good – makes my day in fact. At 65 years old I am finding life very interesting, thanks to my computer and your mag.

NIG Ford
Stonehouse, Glos

Quickshooting lady

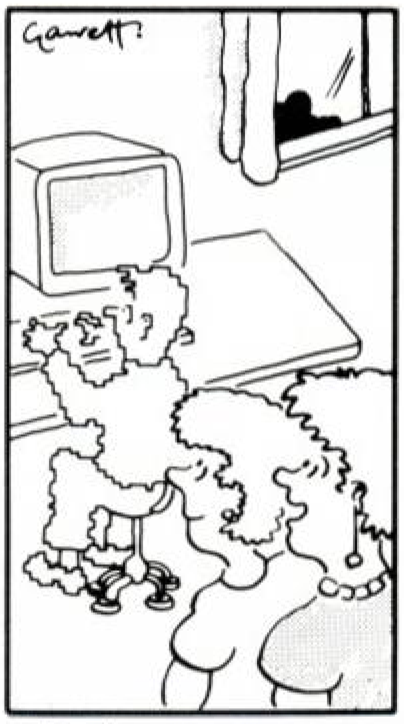
The letter from Mrs Lynn Davis (AA16) made me think how bad I am at playing computer games. I can't get anywhere in *Get Dexter* and the only game I've ever completed is *Space Hawks* – oh, the shame of it! I've also had problems with *Kung-fu Master*. One side didn't load altogether, and the other side kept crashing. So I trekked down to the nearest computer shop, 13 miles away, and had it swapped for *Yie Ar Kung-fu II*, a better game actually. Now this keeps crashing. Is it my computer, or just an unlucky coincidence?

After a year of use, my Quickshot II has retired to the great joystick cloud in the sky. Can you recommend a good but cheap one?

And does anybody want a female, 14-year-old penpal?

Samantha Beale
107 Elm Park Close
Houghton Regis
Dunstable, Beds
LU5 5PW

It's hard to diagnose your crashing problem just from what you tell us, Sam.
The Konix and the Mastertronic Magnum.



"HE'S CHANGED SINCE HE BOUGHT THAT COMPUTER"

The SK Standard

I always like to buy the best of stuff. That's why I have a 6128 and read AA. I have had only only one criticism: the type-ins. There weren't enough of them. But in recent months you have increased their number.

I am no newcomer to computers. In my opinion type-ins are the best way to learn programming. It's okay to have a manual thicker than the front door. They explain and give short examples of command words, but that's all. A well-structured program with lots of REMs to show what's going on will outshine the manual every time.

I should know. I learned how to program in Basic this way. So give us more good listings, especially games. After all, that's what the computer was invented for, wasn't it?

Steve Kelly
Motherwell, Scotland

RpM certainly hopes his choice of listings lives up to your standards, Steve! You'll find a game in this month's listings. It's a standing challenge to you to send us another fit to include. What was life invented for?

Au revoir, hi-score

I was one of the few actually glad to see Hi-Score depart. I am like Mrs Lynn Davies (Reaction 16): I buy games to squander money, get medium scores or get mercilessly hammered. *Druid*, however, the one on the AA tape, I completed with da help of da AA map. Motto: cheat when possible!

Please, any t-shirts? I want to show the Speccies, Commies and Vikies the magazine that counts!

To any French readers: penpals as addicted to AA as I am, drop me a line, French or English. (We do, fortunately, learn French. We are not all boggits!)

Mark Dowling
Ballindangan Cross
Mitchelstown, Co. Cork
Eire

February is rather too cold for displaying AA t-shirts. But you can get matching bumper stickers from a certain motoring organization.

Guide to Future

Does Infocom's *Hitch-hikers Guide to the Galaxy* work on the 664 with a ram expansion?

Is the company that prints your magazine the same one that prints science-fiction books among other things?

James Moffatt
Walton-on-Thames

You shouldn't even need the ram expansion, James. Peter Sleeman of Electric Dreams tells us he installed all the Infocom adventures last autumn for the whole Amstrad range (except the Interactive Fiction Plus series, which will not be possible on the CPCs and maybe not even on expanded PCWs). They are distributed in the UK by Activision. Before 1986 Softsel handled Infocom, and the Softsel version had some problems with printing to screen.

We don't do any actual printing here – you must mean 'publish'. Are you confusing us with Futura paperbacks? Or thinking of some of Bob Wade's reviews? Our company, Future Publishing Ltd, does nothing (so far) but three superlative magazines, one for each Amstrad.

Smile on the phone

I am sending my subscription form with cheque, as I am so impressed with the mag and the offer. But what really got me to write to you was the pleasant and very helpful lady on your mail-order section. Keep up the good work.

B Calcott
Basingstoke

Carrie-Anne nor Clare nor Di nor Jane nor Sarah nor Sue have owned up to this sort of behaviour. So we'll just have to compliment them all.



Rave for Rob't

Having bought *Ikari Warriors* I can only give Bob a pat on the back for his excellent review. I don't think I would have gone downtown to buy it if it wasn't for his review. Well done, Bob.

Have you reviewed *Silent Service* and *Xcel* yet? I missed the December issue of *AA* and do not know if they were reviewed then.

I totally agree with Rob Shepherd about the fizz and sparkle you seem to have lost, but despite all this keep up the great mag and the reviews (good ol' Bob) and the cheat mode.

Ryan Hall
Cleethorpes

Mastertronic's Xcel *was a Rave in AA17. Now if you were a subscriber, Ryan, you wouldn't have missed it! (Hint, hint, fizz.)* Silent Service *is due – don't hold your breath – from US Gold.*

Inlay not xcellent

There are several bugs in Mastertronic's *Xcel*, which I'm not going to hold against Mastertronic because the firm usually produces excellent high-quality games.

On the inlay there are instructions for what keys do what. But some keys don't do anything whatsoever, and all the keys on the inlay are the wrong keys. Does anyone know keys for saving and loading the game and other features?

If anyone would like to give me information privately, here is my address.

Darren Jackson (age 12)
85 Fitzherbert St
Warrington, Cheshire
WA2 7PN

You don't say what bugs you've found, Darren, so we can't very well check them with Mastertronic. But we do agree that the people there could have remembered to adapt the instructions from the Spectrum version. (And they could have improved some sloppy English while they were at it.) These are the keys you need:

Escape	*Computer 1*
Tab	*Computer 2*
Caps Lock	*Status*
Shift	*Map*
Delete	*Remote probe*
Enter	*Hyperspace*
small Enter	*Communication*

There is no provision for saving games.

Still mega-brill

A letter in Reaction (AA16) entitled 'Formerly mega-brill' made me cringe. I think since the October issue you have really smartened up the magazine.

Jonathan Webber
Littlehampton, W Sussex

Home-made review

It's now a year since I got *Yabba Dabba Doo* (Argus Press Quicksilva), and I just have to tell you about it. The object is to travel round collecting all the bits to your house. When you've built your house you must find Wilma.

Good news:

- Good music on the title screen.
- Characters well animated.
- Large playing area.

Bad news:

- Bit too easy.
- No puzzling involved.
- Not much sound.
- Colour is not good.

Graphics 43%, sonics 24%, grab factor 18%, staying power 22%, my rating 31%.

Overall comment: It's a good job you didn't review it.

Shaun Eccleston
Wigan, Lancs

Read this, Andy

I like your action in offering a separate magazine for the CPC machines.

Please thank Andy Wilton for his *Absolute Beginners* course in Basic (AA issues 8-17). I have read another such course in another magazine (to which we no longer subscribe!) and attended two courses locally. All dealt with For-Next, Gosub, Strings etc. But I have no idea what to do next.

Perhaps Mr Wilton could do a 'Beginners II' series? With exercises at the end for the reader to work out, and answers the following month?

Mrs Agnes Leader
Tonbridge, Kent

Tough editor

Bob Wade sets first-day target scores that take more than a week to get – particularly *Fourth Protocol*. How did you do it, Bob? Don't be shy; just tell us.

Owen McGarvey
Pollok, Glasgow

'I just like to make them tough,' says Bob. As for 4P, 'I can't remember.' Let's see if he can do it again!

Curious utility

The *Landscape Utility* has received a marvellous response from our customers, unlike your reviewer (AA 16). Thumbs up for the colour pictures; thumbs down for your reviewer's imagination. The German magazine *Schneider Aktiv* describes the *Landscape Utility* as 'simply astonishing' and 'very good value for money'. It also gives *seven* different uses for the program.

The spontaneous landscape-creation concept was a mammoth effort in original programming techniques. The price is reasonable: more than a game, but less than (say) a compiler. The first, simpler, version was offered cheaply last year for another magazine. Now the landscape-creation concept is more advanced.

We have enthusiastic users writing from many different countries. You can make greetings cards using colour photos of the landscapes; some like to make tapestries from it, or use printouts as a basis for oil paintings. You can indeed use the screens (saved on disk) in adventure games.

It is a serious work of art, with 1,000 million views. The *Landscape Utility* is an exciting new demonstration of artificial intelligence in art, available only on the CPC machines.

As a special reward to all those noble readers who have read this far: you qualify for £5 off the January price.

Brian James (Software)
21 Lamond Place
Aberdeen, AB2 3UT
☎ (0224) 63 9070

Now at £14 (cassette) or £17 (disk) your package might be better value for money, but we still think it's more of a curiosity than a utility.

Run the gauntlet

In issue 9 you reviewed *10 Computer Hits: 2* (Beau Jolly). It had *Gauntlet* on it, and you gave it an AA rating of 73%. But in issue 16 it was the Mastergame with an AA rating of 93%!

Alex Gwinn (age 11)
Chelmsford, Essex

Two different games with the same name. The first, from Micro Power, was a shoot-em-up rather like Defender. *The Mastergame from US Gold was an arcade.*

Ace conversion

I came across a review for *Ace of Aces* (US Gold) on the Commodore. I marvelled at the graphics. If I had not known better I would have asked why they don't do graphics like that on the Amstrad. But we all know that Arnold's graphics and sound-effects are far from second-rate.

So why are games conversions from Commodore to Arnold usually disappointing? Look at *Ghostbusters, Rambo, Bounty Bob Strikes Back* and many other conversions and put them next to *Batman, Starstrike II, Lightforce* and countless others. You can see the difference, can't you? The majority of Amstrad games are high quality; it's just those few that let you down.

As for *Ace of Aces*, I look forward to reading its review in this magazine. Let's hope it's as good as or better than the Commodore version.

Daniel Tudball
Twickenham, Midx

It's a two-way street. A game is written to make best use of the machine it starts on. The Amstrad differs in many important aspects from the Commodore. Conversions are typically done by programmers who were not involved in the original work. For the author it was a labour of love; for the converter a lump-sum job to be got done fast.

Instant evergreen

Your most recent tape (AA16) was good value for money, but just a little disappointing in view of your previous two. The demos were pretty pathetic, most of them consisting of just one screen (where was *Doomdark's Revenge* ?) But *Druid* was very good and the B side was excellent.

A letter in December Reaction about 'evergreen' games gave me an idea for a feature where readers could vote for their top three evergreens – which they'd owned for three months or more. To start it off, my three would be *Match Day* (Ocean), *Galactic Plague* (Amsoft!) and *Get Dexter* (PSS/Ere). I'd put *Match Day* first – I often go back to it. Although it's easy it's great fun to play.

By the way, I agree about *World Cup Carnival* and *Knight Rider*. They are hopeless, especially at £9 or £10 a time.

Mark Reynolds
Ipswich, Suffolk

AA supplied the master for side B and Firebird put the tape together. Think of the demos merely as a colour adverts for other new Firebird games – you got a complete playable level of Druid *and, as you say, excellent stuff on side B. Even if you liked nothing on the tape, it's still worth more than 50p if you blank it!*

Three months hardly qualifies as evergreen. Tell us after a year if you can still stand your first two games – and once you've solved Dexter *will you still want to play it over and over?*

Which?

I am confused. My dad said we are getting a computer. At school I use a BBC, my friend uses an Electron and my cousin a Spectrum. I used an Amstrad twice and loved it – it's great. But I find it difficult to program.

Please tell me what computer I should get. BBC Bs are old, BBC Masters are expensive, but what I would like to get is an Amstrad 664.

Stephen Tytler
Haslemere, Surrey

The 664 is no longer produced, and Bob doesn't want to sell his. You'll have to choose between the 464 and the 6128, Stephen. I'd think you'd find programming the Amstrad easier than the Spectrum and much the same as the Beeb.

Spellbound! Help!



Until recently I used my Amstrad 6128 almost exclusively for word-processing, but I decided to try a couple of games just to see what I was missing. Well, that ruined Christmas for me, because one of the two games is *Spellbound*. (The other is *Spiky Harold*.)

I don't understand how to get anywhere with *Spellbound*, and I'm hoping you can help me or put me in touch with someone who can. No sooner do I have a wander round the landscape than I die of exhaustion, and I can't work out what I have to do to prevent this. Unfortunately I don't have a lot of time to devote to the game, and what I am really looking for is a way to cheat, I suppose.

My daughter, who thought she was going to be great at playing games, has just discovered boys and isn't interested in helping me out of my difficulty. Perhaps I'm paying the penalty of getting interested in computer games in my 40s – in which case my 72-year-old mother, a Spectrum fanatic, must be a suitable case for locking up!

Having bought the Christmas issue of *AA* (thanks for the tape – *Amfile* is just what I have been looking for) I notice that you publish 'cheat modes'. I wonder if you have done any for *Spellbound*. If this involves buying the appropriate back-issue of the magazine, that's fine, just as long as it will help me get some sleep at night.

Peter Wrighton
Sheffield

We published tips and pokes on in issues 7 and 11. Any Spellbound *expert want to volunteer to help the middle generation? See the new Help Line feature elsewhere in this issue.*

Toot suite

And which one of you writes the page-bottoms? They add extra spice to a great mag.

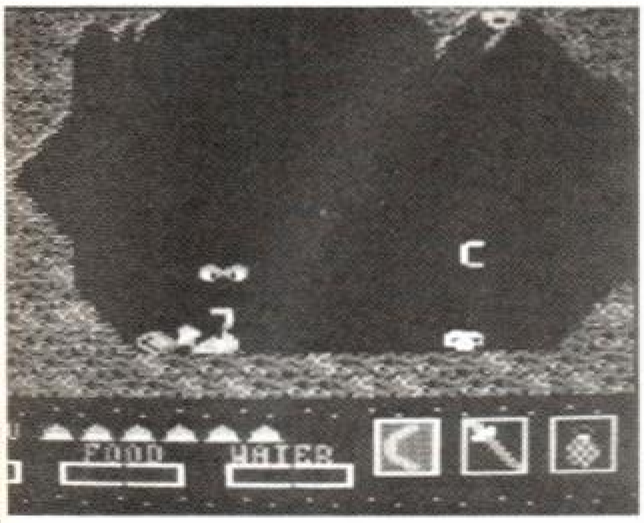
A Bazley
Cheddar, Somerset

Page-bottoms are written personally by Toot.



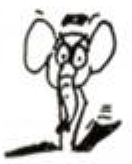
AMSCENE

Jungle hunt



Alligata is giving you the chance to retrace Mr Stanley's trek through the African jungle in search of Dr Livingstone. The game's called *Dr Livingstone, I Presume* and is an arcade adventure supposedly featuring 'realistic jungle scenes and unbelievable hazards.' Well, if my monitor starts sprouting vines, I for one will suspend my powers of belief.

The foes that you'll run into apparently include pigmy tribes, man-eating plants, animal traps, river rapids, giant birds, snakes and monkeys. The game is due out in March at £8.95 on tape and £14.95 on disk.



Put life in your machine

I know it sounds ridiculous but Activision is fervently trying to convince you that a person lives in your Amstrad. It claims that its software called *The Little Computer People Discovery Kit* can coax out onto the screen one of these characters so that you can watch him going about his daily life.

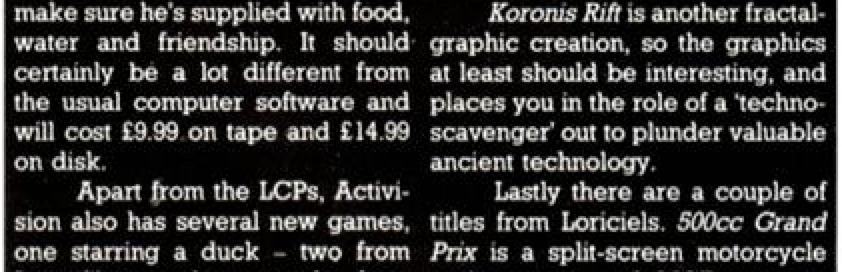
LCPs even come accompanied by a pet dog. Once set up in their house they do all sorts of interesting things. You'll apparently be treated to seeing him eat, sleep, play his piano, play records, watch TV, type on his typewriter and work on his computer. You can play games with him, give him presents and make sure he's supplied with food, water and friendship. It should certainly be a lot different from the usual computer software and will cost £9.99 on tape and £14.99 on disk.

Apart from the LCPs, Activision also has several new games, one starring a duck – two from Lucasfilms and a couple from Loriciels. The duck in question is Howard, star of the recent movie. Howard is on a volcanic island and has to rescue his friends from the dark overlord, we are told. To help him along he's supposed to have a jet pack, 'quack-fu' skills, an ultralite and a laser. All duck jokes should be immediately donated to your nearest Little and Large scriptwriter.

The two Lucasfilm games are *Koronis Rift* and the long-delayed *Ballblazer*. The latter is a two-player game with a split screen; it involves you in a futuristic sport similar to games like blow-football and air hockey. You're given a 3D view from a 'Rotofoil', your craft for travelling about the playing area, and have to capture a ball and score with it in the opponent's goal. Activision says it's 'deceptively simple, very fast and extremely addictive.' Let's wait and see, shall we?

Koronis Rift is another fractal-graphic creation, so the graphics at least should be interesting, and places you in the role of a 'techno-scavenger' out to plunder valuable ancient technology.

Lastly there are a couple of titles from Loriciels. *500cc Grand Prix* is a split-screen motorcycle racing game, and *MGT* puts you in a magnetic tank in a frozen palace. All these titles being released by Activision will be available at £9.99 on tape and £14.99 on disk.





Bowled over

On first seeing this picture it occurred to me that this was a funny way to polish a bowling alley. Further investigation revealed that it was a publicity shot for US Gold's new game called *10th Frame*, which will hopefully produce better bowling than the US Gold employee pictured.

The game promises and perspective view of the bowling alley and the ability for up to eight players to take part. It will also have skill levels for amateur, professional and kids. It will cost £9.99 on tape and £14.99 on disk to find out if it will bowl you over.

Plug-ins to the real world

The Electronic & Computer Workshop is releasing 'an economically-priced and flexible motherboard/plug-in module system' for the Amstrad range – retailing at £52.

With the motherboard attached it will be possible to connect a wide range of analogue and digital devices allowing the control of many types of electrical circuit. Connected via the computer's input-output ports, it allows the user to select one or more modules providing the I/O features required.

The plug-in series (available both ready-built and in kit form) already includes an eight-channel analogue input multiplexer, analogue-to-digital converter (and vice-versa), Centronics printer port, eight-channel logic input, real-time clock and a general-purpose output card with a choice of relay and triac outputs. There is even a 'breadboard' plug-in allowing the more adventurous to develop their own projects.

Typical prices for the kits start at around £22 for the A/D converter. The real-time clock will set you back slightly more, £46.18. A full price list or further information can be obtained by phoning ECW on (0245) 262149.

Mastergames?

US Gold has released a couple of compilations for the Amstrad under the label Master Games – not our Mastergames, you understand; that's something else altogether. One is a collection of three Ultimate games called *Unbelievable Ultimate* and the other is called *Amstrad Academy* and has four past US Gold titles on it.

The three Ultimate titles are *Alien 8*, *Nightshade* and *Sabre Wulf* and available for £7.99 on tape. That's a very nice compilation if you haven't got the games and we'd thoroughly reccommend it. The other compilation is less attractive but still reasonably good value. The four titles on it are *Zorro*, *Bruce Lee*, *Bounty Bob* and *Dambusters*, and it sells for £9.99 on tape.



Safety in numbers

The Electronic Maintenance Service has set up a Complete Computer Repair Scheme, and claims it is 'specially formulated to keep your home computer at its peak performance and to give you maximum use and enjoyment for a long time to come.'

The scheme covers not only your computer console but most of the peripherals that you may wish to add on. It does not cover manufacturers' warranty work.

A one-year basic membership costs £15. Further machines can be covered under this plan at a reduced cost of £7.50 per system.

If your machine should break down during the year EMS will repair it for £1 plus parts. For full details, contact EMS on (0733) 75025.

Konix award

Why are these two men fighting over what looks like a disk brake? The answer is that the man on the right is Sir John Harvey-Jones, chairman of ICI, presenting the New Enterprise Award in the Welsh National Business Awards to Wyn Holloway, managing director of Konix.

The award was gained because of the Speed King joystick that the company produces. We first reviewed this over a year ago and have been singing its praises ever since, to the extent of including it in a subscription offer. It's still an excellent joystick as you'll see from this month's comparison. Congratulations to all at Konix on their award.



That was the show that was

The 6th Amstrad Show in January opened with a clatter of doors and a hushed expectancy. Although more floor space at the Novotel, Hammersmith, had been given to the exhibitors, there were more Amstrad machines to cater for, with the advent of Hermann, the PC compatible.

Fewer games software houses were present. The air was filled with the scent of business programs, utilities and hardware gadgets.

AMS was showing off *Pagemaker* – the almost completely debugged version. An error-free version is due out 'in a couple of weeks'. That was the message everyone received at the show: by the time *AA* reaches the newsstands *Pagemaker* should be perfect. Hot on its tail is *Extra! Extra!* – containing 300k of clip art and over 25 fonts which are readily incorporated into the *Pagemaker* system. That little lot sets you back £25.

Max is the title of the soon-to-be-released disk filing system from AMS. It contains a comprehensive set of disk operations such as cataloguing, copying, deleting, and renaming. Also included are disk utilities: a sector editor and formatter to name a few. At £20 we wait with bated breath.

Madly digitizing was Rombo – the lads from Lothian have completed their updated software to make full use of the 6128's extra 64k and squeeze every T-cycle (clock or time cycles) possible out of the CPC machines. The new software is quite extraordinary: over six frames a second can be grabbed; greatly enhanced printer dumps are available (including vertical and horizontal printing and double-density dumps); screens can be converted making them suitable for use with *Pagemaker*. Included in the software is a function that allows windows to move around a screen, grabbing frames as they do so. The Vidi digitizer and *Pagemaker* can be purchased together at £130.

Siren Software's constantly crowded stand seemed to be doing well with its Megadrive, *Amram* and *Printmaster* all ready for the taking.

The Megadrive is a 5¼-inch drive capable of storing 1 megabyte of information. It is currently the only drive fully compatible with both CP/M and Amsdos operating systems. For £229 it should be.

Amram is a simple form of sideways ram for the CPC computer. It saves any rom to disk, loads any rom to *Amram*, where the computer thinks it is a rom. *Amram* at £40 plugs into your Amstrad and comes supplied with icon-driven software allowing you to edit and customise roms.

The final novelty from Siren, of Manchester, is *Printmaster*. This £13 disk allows ordinary Epson-compatible printers to print superb-quality text in a variety of styles and sizes. It can also print high-quality screendumps in varying sizes and shades, and can do it as a background task.

Without a doubt the medal for the nosiest stand goes to Electromusic Research of Wickford, Essex. On display was the Miditrack Music System with enough amps, synthesizers, keyboards and other musical gadgetry to fill your room – and enough power to blow the roof from above you.

The Miditrack software has the power to transform your micro into an 8-track realtime digital recording system. Of course there's a price involved: £130. But for that you get software and an interface that gives you complete control over the music you produce from a Midi instrument.

The 6th Amstrad show had little new to offer for the CPC machines: with the 5th show being just a couple of months earlier and the Christmas holidays in between, it was hardly surprising. There have been promises of great things to come. The next show is in July – and that should give the software and hardware companies ample time to put together enough goodies to keep you happy.

More buffer for your printer

The printer buffer curently present in the DMP 2000 and 3000 printers is a miniscule 2k. Goldmark Systems is giving you the chance to upgrade to a new static ram increasing the printer buffer by 6k. With the expanded buffer installed, up to four pages of text can be printed without your computer being held up from other jobs.

In kit form with full instructions, it will set you back £5.50. Next issue we shall put it to the test; till then Goldmark can be contacted on Hatfield (07072) 71529.



Recipe for destruction

Now here's a novelty: a new game on Ariolasoft's Reaktor label that includes its own cake recipe. The game is called *Killer Ring* and unashamedly advises that when playing the game 'if it moves, shoot it, if it doesn't, shoot it anyway.' It sounds like our kind of game but we haven't tried it out yet, and more importantly we haven't tasted the cakes either. To obtain this unique cookery lesson will cost you £7.99 and they'll even throw in the game on tape as well.

Make light of it

Does Pride thrust your Amstrad's graphics into the limelight? Pat McDonald finds out

The Electric Lantern Show
Pride Utilities (0582 41 1686), £14.95 disk only

The package is billed fuzzily as a 'Fun Entertainment Package'. What it actually is: it tries to provide powerful manipulation of the video screen to whoever uses it. Its name may be daft, but it does include some outstanding demo pictures. If you want to show off your Amstrad's graphics, the *Electric Lantern Show* will do just that.

Also included on the disk is *Printer Pac 2*, which on its own can produce small A5 graphics copies on your printer – Epson-compatible, Shinwa CPA-80 or Amstrad DMP1. There is also a facility for echoing all screen characters to the printer. When used in conjuction with the *Electric Lantern Show* it can produce larger A3-sized dumps by pressing two keys. If loaded on its own, *Printer Pac 2* uses RSXs to control it.

This magazine has published listings to produce A4 and A1 sizes of video dumps, so you can see why this program comes free with Pride's package. (A4 is twice as large as A5, and A3 is twice as large as A4. All sizes are approximate, because you generally end up trimming large picture dumps.)



Once the program has started, you see a menu. The first option lets you load in a picture. This can be a standard screen, but the *Electric Lantern Show* prefers you to use its compression utility. All the demo programs are compressed – some are only 4k long – and when a program is saved, it is always saved compressed. The program can also load in pictures from the ESP lightpen format or *Screen Designer*, though which screen designer is not mentioned in the provisional manual.

The second option on the menu changes resolution and pen colours. No prompts are given, since any message printed would corrupt the screen. If a mistake is made (yes, I made some!), the colours and mode can be reset to what they were before you started messing around.

The next option (Show) is the core of the program. The cursor keys will now scroll the screen around a quarter-screen window. Pressing Control and Up will zoom in on this window. Control and Down will mirror the picture – turn it upside-down. Pressing Control and Right will mirror the left from the right. Control and Left will divide your picture into four. The Clear key wipes whatever is in the window to the paper colour.

These operations are very quick, probably using machine-code or a compiled language. It's fun taking a picture and playing around with it like this. Again, there is a facilty to redraw the picture from its basic state; however, pressing Space will take whatever is on screen and lock that as the native picture.

The fourth option simply saves the screen, and the last returns

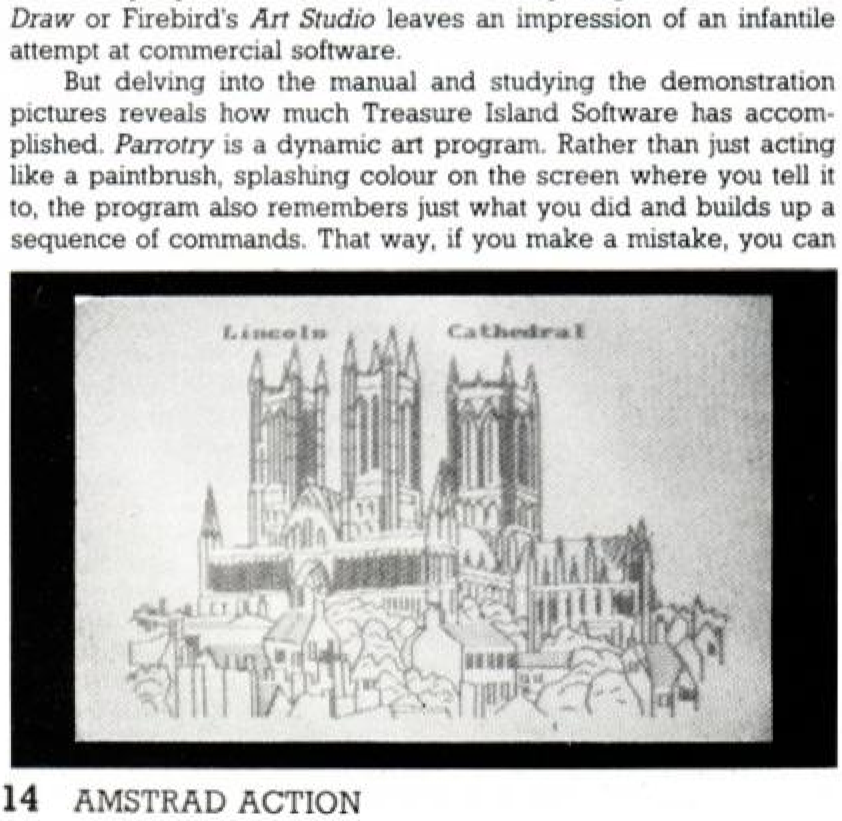
Polly-filler

Pat McDonald digs for graphic goodies from Treasure Island

Parrotry
Treasure Island Software (0525 40 5621), £12.95 disk only

First impressions can be very misleading. *Parrotry* is an art program aimed at people who are not artistic. Comparing it to *Melbourne Draw* or Firebird's *Art Studio* leaves an impression of an infantile attempt at commercial software.

But delving into the manual and studying the demonstration pictures reveals how much Treasure Island Software has accomplished. *Parrotry* is a dynamic art program. Rather than just acting like a paintbrush, splashing colour on the screen where you tell it to, the program also remembers just what you did and builds up a sequence of commands. That way, if you make a mistake, you can delete your error from the list of commands, and redraw the picture. Also, simple animation is easy to achieve, such as eyes flicking left and right.



The program can plot an individual point, draw a line from one point to another and draw circles. The circles are just 30 or so lines joined together, so if an arc is required, all you have to do is delete the lines you do not want from the command sequence.

The program will let you fill in an area of the screen, but if there is a gap in the box, circle or area the ink will flood out and ruin your picture. Bad fills can quickly be deleted.

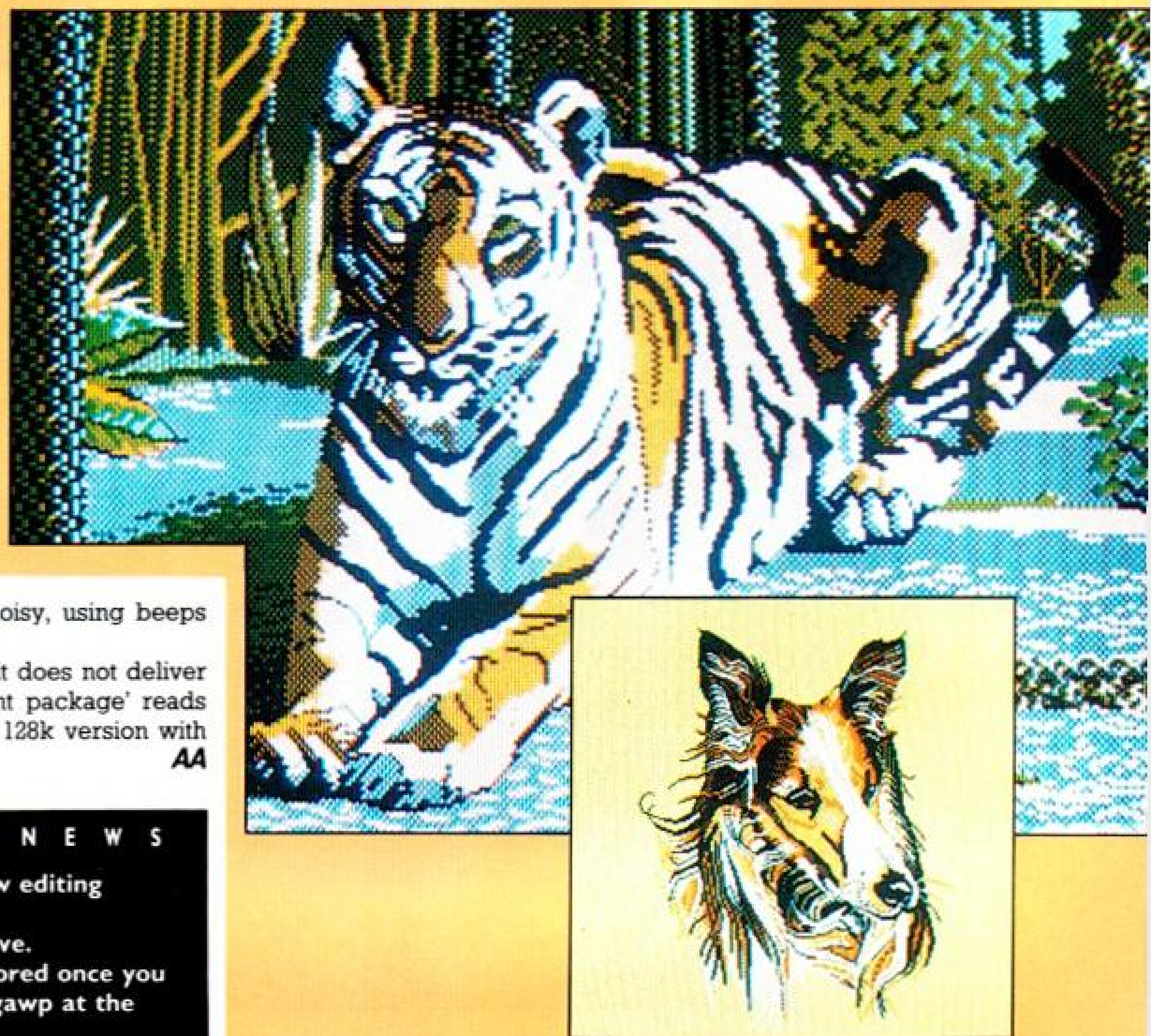
The program will work in either mode 0 or mode 1. Ink and pen colour are easily changed. There is also a grid option, which should help when copying other pictures: you divide the original picture into squares and copy it section by section. Normally, two sheets of acetate and a felt-tip pen are supplied with the program to help in copying art. These were not supplied to me, so I can't comment.

A bad omission is that the program cannot handle shades or textures, only solid colours. I think this is a great pity, as they are such very useful features. Also, *Parrotry* cannot integrate with other programs – it has its own standards and protocols.

The program can loop in the command list: rather than draw many individual squares you can draw one and repeat it at various coordinates. This is a powerful feature for a drawing program. Other options place text on the screen or change the border colour. There is also a 'laser': simply a beam that mimics the drawing action. The screen can also be saved as a conventional one, so that it is easily loaded from Basic.

Understand that the command sequence is number-based, so you can't just type in, 'Draw a line from here to there.' Instead you





you to Basic. The menu system is annoyingly noisy, using beeps and crunches to dramatic effect.

The trouble with the actual program is that it does not deliver any really powerful functions. 'Fun entertainment package' reads 'toy' in my book. Come on, Pride, release a full 128k version with picture merging, editing and rotation. **AA**

GOOD NEWS	BAD NEWS
■ Demonstration pictures are stunning for the Amstrad. ■ Will provide some amusement. ■ Printer utility is okay if you have not got one.	■ Has very few editing facilites. ■ Too expensive. ■ You grow bored once you have had a gawp at the pictures.



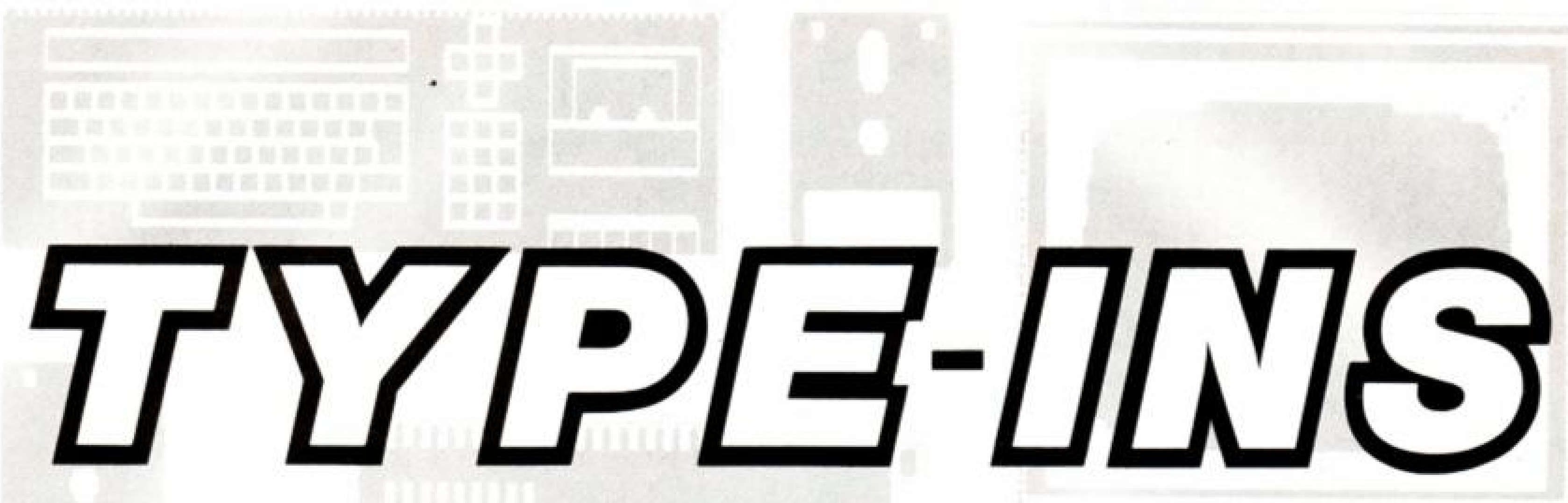


must enter a sequence of numbers or draw the line yourself. Think of it as finding a telephone number, then finding out who that number belongs to.

To judge from the manual, I think Treasure Island Software has a rebellious attitude: it burns with vitriolic scorn for conventional screen designers, WIMPS and user-friendliness in general. Furthermore, even if they have a disk drive, 464 owners cannot use *Parrotry*.

Personally, I rather like it. *Parrotry*'s editing functions are not of the best, but the design and the way it works really are different. Put some effort in, and *Parrotry* is a useful tool. **AA**

GOOD NEWS	BAD NEWS
■ Intricate repeated patterns are very easy to do. ■ Cheap for an art package. ■ Once you understand what is going on, it is easy to use.	■ Lacks standard functions, for example spraycans. ■ Unconventional, and not easy to get to grips with.



TYPE-INS

Useful, interesting, entertaining, curious – and all yours

More than four

This listing from **Charles Gatenby** of Emborough, Somerset, uses only four colours but draws a series of lines to give the impression that more than four colours have been used. As the lines are so close together, the colours will overlap slightly, giving the appearance of more shades.

The program is set up to work with a joystick. However, if you wish to use a keyboard alter lines 40, 50 and 60 to read as follows. This lets you use the left and right cursor keys and the Copy key.

```
40 IF INKEY(1)>-1 THEN p=p+1
50 IF INKEY(8)>-1 THEN p=p-1
60 IF INKEY(9)>-1 THEN CLS
```

Here is the main listing:

```
1 ' More than four
2 ' Charles Gatenby
3 ' Amstrad Action   March 87
10 MODE 1:INK 0,0:BORDER 0
20 INK 0,0:BORDER 0
30 ORIGIN p,0:DRAW p,p,RND*3+1
40 IF JOY(0) AND 8 THEN p=p+1
50 IF JOY(0) AND 4 THEN p=p-1
60 IF JOY(0) AND 16 THEN CLS
70 GOTO 30
```

3D cube

Continuing the three-dimesional saga, **Paul McLean** of Oxted, Surrey, has sent in a routine to rotate a cube. It doesn't use colour-switching but draws up the lines for each new position. This explains the flicker.



```
1 ' 3D cube
2 ' Paul McLean
3 ' Amstrad Action   March 87
10 INK 1,26:BORDER 26:DEG:MODE 2
20 ORIGIN 320,200:x=200:s=5
30 FOR n=0 TO 360 STEP s
40 b=x*COS(n):m=0:q=x*SIN(n)
50 w=-(q*q)/x:r=b:f=b*q/x:a=f:h=q
60 z=-w-x:CLS:INK 1,0
70 MOVE (b+w+a)/2,(m+r+h)/2
80 DRAWR -w,-r:DRAWR -a,-h:DRAWR w,r
90 MOVE (-b-w+a)/2,(-m-r+h)/2
100 DRAWR w,r:DRAWR -a,-h:DRAWR -w,-r
110 MOVE (b-w+a)/2,(m-r+h)/2
120 DRAWR -b,-m:DRAWR -a,-h:DRAWR b,m
130 MOVE (-b+w+a)/2,(-m+r+h)/2
140 DRAWR b,m:DRAWR -a,-h:DRAWR -b,-m
150 INK 1,26:NEXT n
```

Synth

This astounding program from **Alastair Scott** of Stirlingshire turns your Amstrad into a three-channel synthesizer. Using the bottom two rows of keys, you can play up to three notes at once.

Pressing Control and one of the function keys alters octave, attack and decay (for percussive sounds), release (rate at which a note dies away) and tone envelope (which produces warbling or vibrato effects). All the instructions are held within the program, so you don't need to repeat them here. If you have speakers attached to Arnold, you'll be impressed by the stereo sound from them.

```
1 ' Synth
2 ' Alastair Scott
3 ' Amstrad Action   March 87
10 CLS:DEFINT a-z:DIM no(5,20),ke(20)
20 ON BREAK GOSUB 140
30 ON ERROR GOTO 890
40 GOSUB 490:GOSUB 690
50 EVERY 3,3 GOSUB 310
60 EVERY 3,2 GOSUB 340
70 EVERY 3,1 GOSUB 370
80 WHILE INKEY(16)
90 FOR c=1 TO 20
100 IF INKEY(ke(c))=0 AND c<>c1 AND c<>c2 AND c<>c3
    THEN GOSUB 170
110 NEXT
120 IF INKEY(23)=128 THEN fl=0:GOSUB 400
130 WEND
140 SOUND 135,200,10,10:CLS:CALL &BC02
150 PEN 1:FOR a=1 TO 3:re=REMAIN(a):NEXT
160 WHILE INKEY$<>"":WEND:END
170 IF c1=0 THEN GOSUB 190 ELSE IF c2=0 THEN
    GOSUB 230 ELSE IF c3=0 THEN GOSUB 270
180 RETURN
190 IF c AND c=c2 OR c=c3 THEN RETURN
200 SOUND 129,0
210 SOUND 129,no(oct,c),32767,12,1,et
220 c1=c:RETURN
```

Disk menu

Joseph Halstead of Bradford in West Yorkshire has written a useful routine for all disk users, a disk menu..Run the program and a catalogue of all the programs on disk will be displayed. There will be a cursor on screen which can be moved, using the cursor cluster, to the program you wish to load or run.

```
1 ' Disk menu
2 ' Joe Halstead
3 ' Amstrad Action   March 87
30 FOR i=0 TO 6
40 READ a$
50 POKE &1500+i,VAL("&"+a$)
60 NEXT
70 DATA CD,60,BB,32,07,15,C9
80 ' define key for quick saving onto disks
90 KEY 0,"save"+CHR$(34)+"disc"
100 MODE 2:CAT
110 x=14:y=3
120 ' move screen up
130 LOCATE 1,25:PRINT CHR$(10)
140 LOCATE 8,23:PRINT"Use the cursor keys and
    the Spacebar to choose the program."
150 ' print the cursor
160 LOCATE x,y:PRINT CHR$(242)
170 ' move the cursor
180 IF NOT INKEY(47)=-1 THEN GOTO 320
190 IF INKEY(0)=-1 THEN y=y+1
200 IF INKEY(2)=-1 THEN y=y-1
210 IF INKEY(1)=-1 THEN x=x-20
220 IF INKEY(8)=-1 THEN x=x+20
230 IF x<14 THEN x=14
240 IF x>74 THEN x=74
250 IF y>18 THEN y=18 ELSE LOCATE x,y-1:PRINT" "
260 IF y<3 THEN y=3 ELSE LOCATE x,y+1:PRINT" "
270 IF x+20<80 THEN LOCATE x+20,y:PRINT" "
280 IF x-20>0 THEN LOCATE x-20,y:PRINT" "
290 FOR b=0 TO 150:NEXT b
300 OUT &FA7E,1:GOTO 160
310 ' read the filename
320 FOR h=-13 TO -2
330 LOCATE x+h,y
340 GOSUB 480
350 NEXT
360 LOCATE 8,23:PRINT"LOAD"+CHR$(34)+a$+CHR$(34);
370 PRINT" or RUN"+CHR$(34)+a$+CHR$(34);" or
    CANCEL (L/R/C)?      "
380 an$="":an$=INKEY$
390 an$=UPPER$(an$)
400 IF an$<>"R" THEN GOTO 430
410 LOCATE 1,23:PRINT SPACE$(80):LOCATE 8,23
420 PRINT"RUN"+CHR$(34)+a$+CHR$(34):RUN a$
430 IF an$<>"L" THEN GOTO 460
440 LOCATE 1,23:PRINT SPACE$(80):LOCATE 8,23
450 PRINT"LOAD"+CHR$(34)+a$+CHR$(34):LOAD a$
460 IF an$="C" THEN GOTO 100
470 GOTO 360
480 CALL &1500:a$=a$+CHR$(PEEK(&1507))
490 a$=RIGHT$(a$,12)
500 RETURN
```

```
230 IF c AND c=c1 OR c=c3 THEN RETURN
240 SOUND 130,0
250 SOUND 130,no(oct,c),32767,12,1,et
260 c2=c:RETURN
270 IF c AND c=c1 OR c=c2 THEN RETURN
280 SOUND 132,0
290 SOUND 132,no(oct,c),32767,12,1,et
300 c3=c:RETURN
310 IF c1=0 OR INKEY(ke(c1))=0 THEN RETURN
320 SOUND 129,no(oct,c1),0,12,2,et
330 c1=0:RETURN
340 IF c2=0 OR INKEY(ke(c2))=0 THEN RETURN
350 SOUND 130,no(oct,c2),0,12,2,et
360 c2=0:RETURN
370 IF c3=0 OR INKEY(ke(c3))=0 THEN RETURN
380 SOUND 132,no(oct,c3),0,12,2,et
390 c3=0:RETURN
400 IF INKEY(13)=128 THEN oct=oct MOD 5+1
410 IF INKEY(3)=128 THEN et=(et+1)MOD 9
420 IF INKEY(5)=128 THEN attack=(attack+1)MOD 6:fl=1
430 IF INKEY(12)=128 THEN decay=(decay+1)MOD 6:fl=1
440 IF INKEY(10)=128 THEN rel=rel MOD 9+1:fl=1
450 IF fl THEN ENV 1,5,3,attack,2,-1,decay:ENV 2,12,-1,rel
460 PEN 2:LOCATE 1,25
470 PRINT USING"Attack # Decay # Oct # Release #
    Tone #";attack,decay,oct,rel,et
480 RETURN
490 FOR oct=-2 TO 2
500 FOR note=1 TO 20
510 IF note>12 THEN o=oct+1:n=note MOD 12
    ELSE o=oct:n=note
520 fr!=440*(2↑(o+((n-10)/12)))
530 t=ROUND(62500/fr!)
540 no(oct+3,note)=t
550 NEXT note,oct
560 FOR a=1 TO 20:READ ke(a):NEXT
570 DATA 71,60,63,61,62,55,52,54,44,46
580 DATA 45,38,39,36,31,29,30,22,19,06
590 FOR a=&BF00 TO &BF0B:READ a$
600 POKE a,VAL("&"+a$):NEXT
610 DATA DD,7E,00,CD,E4,BB
620 DATA DD,7E,02,C3,DE,BB
630 ENT-1,9,1,1,9,-1,1:ENT-3,4,4,4,4,-4,4
640 ENT-2,1,5,4,1,-10,4,1,5,4:ENV 1
650 ENT-4,6,3,1,6,-3,1:ENV 2,12,-1,6
660 ENT-5,8,4,2,8,-4,2:ENT-6,3,1,1,3,-1,1
670 ENT-7,2,6,6,2,-6,6:ENT-8,8,2,4,8,-2,4
680 oct=3:attack=0:decay=0:rel=6:et=0:RETURN
690 MODE 1:BORDER 26:FOR a=0 TO 3:INK a,26:NEXT
700 SYMBOL 255,233,137,141,235,137,137,233
710 c=1:white$="ZXCVBNM<>/\"+CHR$(255):black$="SDGHJL*]"
720 CALL &BF00,1,0
730 FOR a=1 TO 12
740 MOVE a*40+30,100:DRAWR 0,160:DRAWR 40,0:
    DRAWR 0,-160:DRAWR-40,0
750 MOVE a*40+46,130:TAG:PRINT MID$(white$,a,1);:TAGOFF
760 NEXT
770 CALL &BF00,0,1
780 FOR a=1 TO 11
790 IF a=3 OR a=7 OR a=10 THEN 820
800 ORIGIN 0,0,a*40+60,a*40+80,260,150:CLG 1
810 MOVE a*40+64,180:TAG:PRINT MID$
    (black$,c,1);:c=c+1:TAGOFF
820 NEXT
830 PEN 2:LOCATE 7,1:PRINT"SYNTH by Alastair Scott 1987"
840 PEN 3:LOCATE 11,3:PRINT"Press CLR to finish."
850 PEN 1:LOCATE 7,5:PRINT"f1 Octave f3 Attack f5 Decay"
860 PRINT TAB(8)"f7 Release f9 Tone [+CTRL]"
870 INK 1,0:INK 2,6:INK 3,18
880 GOTO 460
890 CLS:CALL &BC02:PEN 1:PRINT
    CHR$(7)"Error"ERR"at line"ERL
```

Search-and-replace

This routine, sent in by **N A Smith** of Cranbrook, Kent, reproduces a useful routine often found in expensive word-processing packages. This one is designed to be used on Basic programs. You can alter the names of variables without having to search laboriously through the listing and edit it by hand.

You must first prepare a specially saved version of the program you wish to amend. To do this simply load the program and re-save it in Ascii form by typing `SAVE "filename",A`. (This means the actual letters you typed are now saved, rather than the space-saving 'tokens' Basic usually stores to represent keywords.)

When run, the utility will ask several questions: the first is the name of the program to be altered (including the file extension), the second is the word or phrase you wish to replace, the third is the new word or phrase. The final question gives you the option to treat capital and small letters as the same.

Every time the program locates a word to replace, it gives you the choice of altering the word or proceeding to the next occurrence. Search-and-replace is designed to work with one disk drive although it is possible to convert it to run on a cassette-based system. This involves adding a procedure which waits for the user to change cassettes.

```
1 ' Search-and-replace
2 ' N A Smith
3 ' Amstrad Action    March 87
10 MODE 2
20 t$=CHR$(255)+"1234567890ABCDEFGHIJKLMNOPQRSTUVWXYZ
   abcdefghijklmnopqrstuvwxyz"
30 OPENOUT"dum"
40 MEMORY HIMEM-1
50 CLOSEOUT
60 INPUT"File to be opened";file$
70 LINE INPUT"Phrase to search for ";old$
80 LINE INPUT"Replacement phrase ";newname$
90 PRINT"Ignore case (Y/N)?"
100 i$=""
110 WHILE i$<>"Y" AND i$<>"N":i$=UPPER$(INKEY$):WEND
120 IF i$="Y" THEN old$=LOWER$(old$):case=1 ELSE case=0
130 LOCATE 35,4:PRINT"SEARCHING."
140 WINDOW #0,1,80,6,25
150 OPENIN file$:OPENOUT file$
160 WHILE NOT (EOF)
170 LINE INPUT #9,a$
180 FOR r=1 TO 6
190 num=ASC(MID$(a$,r,1))
200 IF num>47 AND num<58 THEN NEXT
210 leftside$=LEFT$(a$,r-1)
220 rightside$=MID$(a$,r)
230 repeatflag=0
240 IF case=1 THEN position=INSTR(LOWER$(rightside$),old$)
    ELSE position=INSTR(rightside$,old$)
250 IF position>0 THEN GOSUB 340
260 IF repeatflag=1 THEN 230
270 updatedline$=leftside$+rightside$
280 PRINT#9,updatedline$
290 WEND
300 CLOSEOUT
310 PRINT"Finished"
320 END
330 '*********************************
340 IF INSTR(t$,MID$(rightside$,position-1,1))>1 OR
    INSTR(t$,MID$(rightside$,position+LEN(old$),1))>1
    THEN i$="N":GOTO 390
350 CLS#0
360 PRINT leftside$+rightside$
370 PRINT"Change ";old$;" into ";newname$;" (Y/N)?"
380 i$=""
390 WHILE (i$<>"Y") AND (i$<>"N")
400 i$=UPPER$(INKEY$)
410 WEND
420 IF i$="Y" THEN GOSUB 520 ELSE GOSUB 460
430 repeatflag=1
440 RETURN
450 '*********************************
460 l$=LEFT$(rightside$,(position+LEN(old$)-1))
470 r$=MID$(rightside$,(position+LEN(old$)))
480 leftside$=leftside$+l$
490 rightside$=r$
500 RETURN
510 '*********************************
520 l$=LEFT$(rightside$,(position-1))
530 r$=MID$(rightside$,(position+LEN(old$)))
540 leftside$=leftside$+l$+newname$
550 rightside$=r$
560 PRINT leftside$+rightside$
570 RETURN
580 '*********************************
```

Sound to light

Here is a clever program sent in by **Alexander Clark** of the Isle of Arran, Scotland. It will give coloured strobe-like effects on the screen in time with any music fed into the computer.

The program will work on all three CPCs. However, as the 464 has an internal tape deck, you can't adjust the volume or hear the music. If you happen to own the Doubler from Evesham Micros though, the input to this can be used instead; alterations to the program should be made as detailed in the listing.

The best results are obtained if the cassette input is plugged into the external speaker socket or headphone socket of a stereo cassette recorder. In fact any source where the output can be fed to the audio-in of the computer and heard at the same time will produce admirable results.

```
10 ' Sound to light
20 ' by Alexander Clark
30 ' Amstrad Action  March 87
40 r=&F5D0:s=&F5E0:t=&F5F0:z=INP(r)
50 CALL &BC6E:CALL &BB4E:CALL &BBFF
60 MODE 0:RANDOMIZE TIME
70 FOR b=1 TO 13:FOR a=1 TO 10
80 d=b+a:c=d MOD 7:PEN c+1:PRINT CHR$(143);
90 NEXT:FOR a=10 TO 1 STEP -1
100 d=b+a:c=d MOD 7:PEN c+1:PRINT CHR$(143);
110 NEXT:NEXT:FOR b=12 TO 1 STEP -1
120 FOR a=1 TO 10
130 d=b+a:c=d MOD 7:PEN c+1:PRINT CHR$(143);
140 NEXT:FOR a=10 TO 1 STEP -1
150 d=b+a:c=d MOD 7:PEN c+1:PRINT CHR$(143);
160 NEXT:NEXT:BORDER 0
170 FOR a=0 TO 15:INK a,0:NEXT
180 x=((((INP(r)=z)+1)*4)+(((INP(s)=z)+1)*2)+
    (((INP(t)=z)+1))):IF y=x THEN 180 ELSE
    INK y,0:INK x,INT(RND*26)+1:y=x:GOTO 180
190 ' If you have a Doubler from Evesham
200 '     Micros alter line 210 to 40
210 r=&10E0:s=&E0E0:t=&F0E0:z=0
```

Space tunnel

An extremely short and hypnotic listing comes from **David Hall** of Stretford, Manchester. It gives you the impression of travelling down a never-ending tunnel. Don't watch it for too long, though – you may begin to act rather peculiarly.

```
10 ' Space tunnel
20 ' David Hall
30 ' Amstrad Action
40 MODE 0:INK 0,0:BORDER 0:PEN 1
50 FOR t=1 TO 50:PLOT 320,200:c=1
60 FOR h=1 TO 40:DRAWR 8*COS(t),8*SIN(t),c
70 c=c+1:IF c=16 THEN c=1:NEXT:NEXT
80 NEXT:NEXT
90 WHILE INKEY$="":FOR y=1 TO 15:INK y,20
100 CALL &BD19:INK y,0:NEXT:WEND:INK 1,26
```

Invadders

Here it is, after much arm-twisting: a game as one of the listings. **Jim Ollerhead** of St Helens, Merseyside, is the man to thank.

Although it may appear to be a straight shoot-em-up, it is in fact intended to provide practice at addition.

The game opens with aliens descending the screen. They have displayed on them a random number. You must shoot enough aliens to reach your 'target score'. If you exceed this score, you lose one of your three lives. A joystick controls your base.

Happy shooting...

```
1 ' Invadders
2 ' Jim Ollerhead
3 ' Amstrad Action   March 87
10 GOSUB 380:GOTO 80
20 POKE &9002,gun:CALL &9003:IF PEEK(&9000)<>32 THEN
   flagk=-1:GOTO 40
30 POKE &9001,23:CALL &9003:POKE &9001,22:IF
   PEEK(&9000)<>32 THEN flagk=-1
40 x=RND*37+1:n=RND*9:ch=246+n:sl=237+2*(n<4)+2*(n<7):
   LOCATE#1,x,1:PRINT#1,CHR$(11);CHR$(sl);CHR$(ch);
   CHR$(sl+1);CHR$(11):RETURN
50 SOUND 2,0,0,15,2,1,5:POKE &9012,gun:DI:
   CALL &9013:p=PEEK(&9010):IF p>232 THEN
   SOUND 129,250,0,0,1,0,31:PRINT CHR$(8);CHR$(240);
   CHR$(241);CHR$(242);:FOR i=1 TO 100:NEXT i:PRINT
   CHR$(8);CHR$(8);CHR$(8);"   ":EI
60 IF p>245 THEN sc=sc+p-246:LOCATE#3,37,1:DI:
   PRINT#3,sc;:EI:IF p=246 THEN flagz=-1
70 EI:RETURN
80 l=3:dl=100:sct=0
90 t=RND*40+10
100 MODE 1:PEN 3:WINDOW#1,1,40,1,23:PEN#1,2:WINDOW
    #2,1,40,24,24:PEN#2,1:WINDOW#3,1,40,25,25:PAPER #3,1:
    PEN#3,3:CLS#1:CLS#2:CLS#3:BORDER 1:gun=20:sc=0
110 LOCATE#3,1,1:PRINT#3," TARGET >";t;SPC(16);
    "SCORE > 0";:FOR i=1 TO l:LOCATE#3,25-i*2,1:PRINT#3,
    CHR$(244);" ";:NEXT:EVERY dl GOSUB 20:
    GOSUB 40:GOSUB 40:GOSUB 40
120 LOCATE#2,gun,1:PRINT#2,CHR$(244);:EI
130 FOR i=1 TO dl:NEXT i
140 IF JOY(0)=8 AND gun<40 THEN LOCATE#2,gun,1:
    DI:PRINT#2," ":gun=gun+1
150 IF JOY(0)=4 AND gun>1 THEN LOCATE#2,gun,1:DI:
    PRINT#2," ":gun=gun-1
160 IF JOY(0)=16 THEN GOSUB 50
170 IF flagz THEN sc=0:LOCATE#3,38,1:DI:
    PRINT#3,"0 ";:EI:flagz=0
180 IF NOT flagk AND t>sc THEN 120
190 IF t=sc THEN 280
200 IF t<sc THEN m$="       YOU EXCEEDED YOUR TARGET !"
    ELSE m$="                THEY GOT YOU !"
210 i=REMAIN(0):LOCATE#2,gun,1:PRINT#2,CHR$(245):
    SOUND 2,0,200,15,3,0,10
220 WHILE SQ(2)>127:BORDER RND*26:WEND
230 LOCATE#1,1,1:PRINT#1,STRING$(12,11);m$;STRING$(12,11)
240 FOR i=1 TO 2000:NEXT i
250 flagk=0:l=l-1:IF l>-1 THEN 100
260 MODE 0:LOCATE 7,9:PEN 15:PRINT"GAME OVER":
    PRINT STRING$(4,10);"   You scored";sct:
    PRINT STRING$(4,10);"  Hit FIRE button":PRINT:PRINT
    "    to play again":i=REMAIN(0):WHILE INKEY$<>"":WEND
270 IF JOY(0)<>16 THEN 270 ELSE 80
280 i=REMAIN(0):FOR i=1 TO 1500:NEXT:RESTORE 490:FOR i=1
    TO 17:READ tk:OUT &FBFE,tk:FOR ii=1 TO 140:
    NEXT ii:NEXT
290 LOCATE#1,1,23:PRINT#1,STRING$(24,10)
300 FOR i=1 TO 500:NEXT i
310 BORDER 0:MODE 0:PAPER 0:CLS
320 sct=sct+sc:IF sct>100 THEN dl=75
330 IF sct>200 THEN dl=60
340 IF sct>300 THEN dl=40
350 LOCATE 6,3:PRINT"WELL DONE!";STRING$(5,10);
    "      Your score":PRINT:PRINT"      so far is":
    PRINT:PRINT SPACE$(8);sct;STRING$(5,10);" Press
    FIRE button":PRINT:PRINT" to continue game"
360 WHILE INKEY$<>"":WEND:WHILE JOY(0)<>16:WEND
370 GOTO 90
380 RANDOMIZE TIME:DEFINT a-z:INK 2,26,18:SPEED INK
    100,25:ENV 1,1,15,30,5,-1,2,1,3,10,12,-1,5:
    ENV 2,1,15,5,3,-3,5,1,0,10:ENV 3,5,-1,20,10,-1,10:
    ENT 1,1,5,5,15,10,1
390 SYMBOL AFTER 233:FOR j=1 TO 22:
    READ char,n1,n2,n3,n4,n5,n6,n7,n8:
    SYMBOL char,n1,n2,n3,n4,n5,n6,n7,n8:NEXT
400 DATA 233,195,239,63,249,249,63,239,193,234,195,
    247,252,159,159,252,247,131,235,27,127,102,219,
    219,102,127,27,236,216,254,102,219,219,102,254,
    216,237,7,63,127,213,213,127,63,7,238,224,252,254,
    171,171,254,252,224,240,168,50,73,148,81,38,169,86
410 DATA 241,0,0,65,213,62,253,62,213,242,21,76,146,41,
    138,100,149,106,244,24,24,24,60,60,126,90,255,245,
    181,82,170,149,107,186,60,126,246,255,195,153,153,
    153,153,195,255,247,255,231,199,231,231,231,195,255,
    248,255,195,153,243,199,153,129,255
420 DATA 249,255,129,185,227,249,153,195,255,250,255,243,
    227,211,129,243,225,255,251,255,129,159,131,249,153,
    195,255,252,255,195,159,131,153,153,195,255,253,255,
    129,153,243,231,231,231,255,254,255,195,153,195,153,
    153,195,255
430 DATA 255,255,195,153,153,193,249,195,
    255,243,24,24,24,60,60,24,24,60
440 ad=&8FFF:MEMORY ad
450 READ a$:IF a$="-1" THEN RETURN
460 ad=ad+1:POKE ad,VAL("&"+a$):GOTO 450
```

Guidelines for Type-in authors

Anything from £10 to £100 could be yours if your type-in is selected to appear in these pages. Remember it must be your own original work. The address: Type-ins, *Amstrad Action*, Somerton, Somerset, TA11 7PY.

If you plan to send a listing to be considered for publication, here are a few pointers:

▶ Use lower-case rather than capitals for variable names. Keep them short but meaningful.

▶ Do not use letters that look like numbers as variable names: lower-case L (l), capital I or either O. Even B can look like 8 on some printers.

▶ REM statements make the program easier to understand – especially when you rediscover it on tape six months later. Put program name, source and date at the top. REM every subroutine to outline its purpose.

▶ Structure your programs – divide them into sensible procedures.

▶ Avoid long multi-statement lines. Short lines make debugging easier.

▶ Try to keep lines short enough to fit our columns without confusing wrap-arounds.

▶ And *please* make sure your name and address (in human-readable form) is on every single piece, especially the label of the cassette or disk. Keep a copy.

```
470 DATA 20,16,20,2a,1,90,cd,75,bb,cd,60,bb,32,0,90,c9
480 DATA 1f,17,14,2a,11,90,3e,32,32,10,90,e5,cd,75,bb,e1,
    3e,f3,cd,5a,bb,e5,11,0,6,1b,7a,fe,0,20,fa,cd,75,bb,
    e1,3e,20,cd,5a,bb,2d,c8,e5,cd,75,bb,e1,cd,60,bb,fe,
    20,28,d5,32,10,90,c9,-1
490 DATA 12,56,35,20,19,33,51,43,4,14,19,19,17,39,19,17,0
```



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MINCING WORDS

Electronic writing on your Amstrad can be quick, clean, correct and clever. We compare seven CPC word-processors and Richard Monteiro reviews two new ones.

What is a word-processor? It's a tool for manipulating words, sentences and paragraphs. It's a program to load onto your computer that does away with the need for pen and paper. It's electronic Tippex. If you make a mistake while typing, just press the Delete key to rub out your mistake. If you decide you want a different layout, you don't need to retype everything, just press a key to format it differently.

In the long run word-processing will reduce the time you need for creating a document. The end result will be neater. And your English will be better because it is much simpler to make corrections or play with words.

Other tools can be added to your word-processor. They will enhance or ease your work but are not essential. Often they have a price tag to match the word-processor's. Spelling checkers are the most useful extension if your spelling is as bad as mine. Or there's a 'mail-merge' facility for creating personalised standard letters.

First let's look in detail at the two newest word-processors on the market for the Amstrad CPC machines, and then compare the other leading contenders.

Pyraword

Discovery/Gremlin Graphics, £14.95 cass, £17.95 disk

The name 'Pyraword' may conjure up images of a multi-headed demon capable of swallowing the whole unabridged dictionary in a single mouthful – it is in fact Gremlin's latest offering, a word-processor.

You may ask what possible good another word-processor could do. Lots – *Pyraword* is simple enough for the novice yet has ample features for advanced users.

It is possible to use *Pyraword* with any of the Amstrad CPC computers. However, if you own a 6128 or are lucky enough to possess an extra 64k of memory, certain enhanced options are available:

- *Pyraword* will position itself into one of the extra memory banks allowing you to use the File Management Utilities (see later) and subsequently return to word-processing without having to reload the program from disk.
- Text of the help and prompt messages is also placed into the extra memory, greatly increasing your workspace.
- A document to be printed will be transferred to an extra memory bank. Printing will then run as a 'background task'. This means that other things can be done, such as editing another document, while printing is in process.

When *Pyraword* first loads, it reads a file WPRINTER.CFG. This is a standard Ascii file which contains information on Paper and Pen inks, linefeeds on or off, character set and printer codes. You can alter this file to suit your needs.



Pyraword will give you the option of either loading in a file or creating a new one from scratch. If you choose to load a file, the screen corrupts – which can be rather unnerving seeing it for the first few times, but my guess is that the program simply makes temporary use of the screen's ram area.

Cursor movement is controlled by the arrow keys. Cursor speed can be set at normal or fast (fast is real hare's pace). Screen scrolling is impressive: it must be the most rapid yet achieved on an Amstrad. Its drawback is that as text scrolls it becomes illegible.

Routines to copy, delete or move a block – essential tools for any real word-processor – have been incorporated. When referring to blocks, I mean a section of text: in *Pyraword* you mark its beginning and end with Control-B and Control-E, and the block changes to reverse video. The block-copy allows for multiple copies to be made within the current text or even to another file on a different disk. Block-delete asks for confirmation before binning the text. And even after deleting, the block can be retrieved as long as another block hasn't been marked.

One rather disappointing aspect to *Pyraword* is that margins can be set no more than 80 characters apart. If a print code is inserted at the right-hand margin, however, a line more than 80 characters across can be sent to the printer.

If you have used a word-processor before you will recognize several key sequences as virtually standard. With *Pyraword* you will have to learn some new keypresses that are not immediately obvious. For example, Control-R formats text, R contrived to stand for 'Resnake text.' Even more obscure, Control-N for 'New input' is



used to read in or merge another file to the cursor position.

Pyraword, like a coin, has heads and tails: on one side it's extremely well thought out; the other side is close to the bottom.

On the plus side:

- A single line can be 'marked' so that later a simple keypress will return you there from elsewhere in the file.
- A keypress will count words instantaneously.
- Very rapid search-and-replace system.
- Pressing the Escape key brings the help menu into view.
- Nine of the function keys can be programmed to record a maximum of 32 characters each.

The minus side:

- Getting to the top or bottom of a document needs two keypresses and doesn't use the standard Control key with up- or down-cursor.
- Pressing Control-G will cause the first character on the line to be examined. If it is lower-case, the rest of the paragraph is converted to lower-case. The opposite happens if the first character is a capital. This could have been a very handy feature if it worked for only a word or even a sentence rather than a complete paragraph, which won't be useful very often.
- True merging of a file is not possible. Another file can be added to the end of your current document and then block-moved to where you want it ... rather a bind.

A command mode gives you a degree of control over the system: you can alter the current drive, delete and rename files, select a different national character set (to get things like French accents), paper and pen inks can be changed, backup files can be zapped and Ascii files can be compressed – all very handy.

Marvellous freedom is given for defining printer control codes. All information is stored in a text file, which you can edit to suit your particular setup. Print parameters such as top margin, bottom margin, lines per page and form depth are handled easily. Headers and footers can likewise be defined without trouble.

Gremlin's claim that *Pyraword* is 'the complete word-processor' may be overdoing it somewhat. It certainly has enough features to shame certain 'wrod processors' and if you are a first-time buyer it's a good buy.

GOOD NEWS	BAD NEWS
■ Versatile text-management routines. ■ Rapid cursor movement and scrolling. ■ Extremely fast search-and-replace function. ■ Easily altered to fit your requirements. ■ Exceptional control when printing.	■ New Control functions to learn. ■ True merging of a file is not possible. ■ Awkward keys for getting to top or bottom of document.

Protext

Arnor (01-684 8009), £19.95 cass, £26.95 disk, £39.95 rom
***Promerge:* £24.95 disk *Promerge Plus:* £34.95 rom**
***Prospell:* £24.95 disk, £34.95 rom**

AA this month switched over to *Protext* for producing the majority of the magazine. The simple reason for the change from *WordStar* is speed – *Protext* is written specifically for the Amstrad; it doesn't have to struggle through layer upon layer of CP/M like treacle in January.

Of all the word-processors we tested, *Protext* is the fastest at reformatting text – blink and you miss it – and at complex search-and-replace jobs. Its speed at deleting, moving or copying blocks is equally impressive. True merging of separate files – even from different disks – is possible anywhere in the current document.

Command keys are easily remembered and include just about every function you need plus a few you probably don't.

Printer options are just as good: emphasized, condensed, subscript and underline are easily selected. Search-and-replace works with no trouble on control codes. The one thing we miss from *NewWord* (but *WordStar* didn't have it either) is reverse video to show when odd print is still on.

With *Protext*, a file can be only as big as the Amstrad's free memory – normally about 22k. We rarely find this a constraint; a solid *AA* page is about 7.5k.

All the Amstrad's own disk operating commands can be executed from within *Protext* – an immense advantage over *NewWord* and *WordStar*. Disk directories are sorted into alphabetical order, complete with file lengths and space free. You can even make calls to other roms. If you want to return to Basic, perform some operation – such as program the function keys – and then resume *Protext*, this too can be done without losing your text.

GOOD NEWS	BAD NEWS
■ Fastest all-round word-processor for the Amstrad. ■ Straightforward to use. ■ All operating-system utilities within reach. ■ Ample features to suit anyone's needs.	■ Price is steep, especially if you wish to add Prospell or Promerge. ■ Printer effects don't show on screen.

Prospell, the *Protext* spelling checker, is easily the most comprehensive for the Amstrad machine. It can be used within *Protext*, or you can check any Ascii file formed from other Amstrad word-processors. When it encounters a word in your text file that isn't in the dictionary, it gives you the choice of adding it to the dictionary, correcting the spelling, ignoring the spelling or viewing the word in context – very fast and powerful.

A mailmerge system can be added to *Protext*: a program titled *Promerge* (or on a rom chip, *Promerge Plus*) can read selected data from a file, print selectively and configure a disk to your preferred options. After merging data, text is automatically reformatted.

Tasword 464, 464D, 6128

Tasman Software (0532 43 8301), £19.95 cass, £24.95 disk
***Tas-spell:* £16.95 disk *Tasprint 464:* £9.90 cass, £12.90 disk**

Owners of *Amsword* will be pleased to know that Tasword is identical – just the name has been altered. (Not the same as *Easi-Amsword*, however.) There are almost as many versions of *Tasword* as there are Amstrad machines. If it's value for money, simplicity and a tranquil introduction to word-processing then the *Tasword* series are top of the class.

Tasword lacks many of the more advanced features found on other word-processors. It does, however, present itself as being child's play. A help list is always on screen; further help is brought into view when required.

Tasword 464D and 6128 have a useful mailmerge facility built in, which can give multiple prints of standard letters and forms. Included is a powerful conditional printing facility – parts of a document can be printed according to rules you set.

The spelling checker that can be purchased to complement *Tasword* works only from disk-based systems. If it does not recognise a word in your text, it lets you correct, ignore or add the word to the dictionary.

A rather impressive extra can be obtained to use with *Tasword*: *Tasprint*. It enables you to print your text file in a choice of five impressive print styles. Data-Run and Palace Script are two of them.

GOOD NEWS	BAD NEWS
■ No competing with it for the price. ■ Very simple to learn. ■ Optional extras can do wonders to your document.	■ Lacks many advanced features. ■ Text-handling routines are rather slow.

Mini Office II

Database Software (061-429 8008), £14.95 cass, £19.95 disk

Mini Office II contains more than just a word-processor, but that's all we'll talk about in this article. The price tag would be good even if only the word-processor were present, but also having the database, spreadsheet and others utilities makes it excellent value.

The word-processor is rather a mixed bag. There are some handy novel features; also included are several rather badly executed standard functions. Text can be written in any screen mode – 20, 40 or 80 columns.

Some of the handier features include a continuous-display clock, search-and-replace system (although slow it works well), and an option allowing commonly used words to be printed out by pressing a single key.



Although centring is possible, it is frustratingly slow. You actually sit and watch while the program fills the left side of the line with spaces. Although amusing to watch a word or line slither across the screen until centred, it does get tiresome after a while. Getting to the top or bottom of a document is a mite irksome: the usual Control and arrow keys aren't used.

It has to be said that the *Mini Office* word-processor is not the best around, nor does it have nearly enough features; what it does very well is to keep your bank balance healthy.

GOOD NEWS	BAD NEWS
■ Inexpensive and comes with many other programs. ■ Use any screen mode.	■ Lacks important functions. ■ Some routines are irritatingly slow.

WordStar

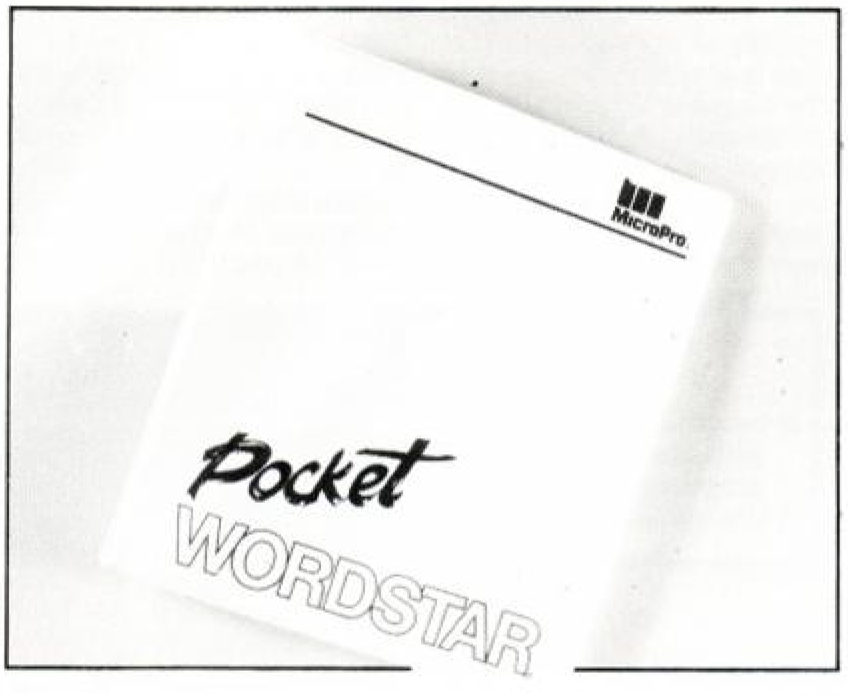
MicroPro, distributed by Cumana (0483 57 1666), £49.95 disk
***Spellstar:* £24.95 disk**

WordStar (the one with the annoying capital letter in the middle) on the CPC micro range is not the fully-fledged version – its true title is *Pocket WordStar*. What you receive when you purchase *WordStar* is an install program and a mailmerge facility – not forgetting of course the main word-processor file.

Just about everything is possible with *WordStar*. It is a professional system with price tag and control to match. Be warned that you're in for a very hard time if this is your first word-processor. There are countless menus and sub-menus, all got at by obscure control-key sequences such as Control-KD for saving a file. It's difficult to get to grips with.

What can they do?

	Pyraword	Pendown	Protext	Mini Office	Tasword	WordStar	NewWord
Unlimited file size	Y	-	-	-	-	Y	Y
Auto reformat	-	-	Y	-	-	-	-
Layout commands stored in text	Y	-	Y	Y	-	Y	Y
Optional spelling checker	-	-	Y	-	Y	Y	Y
Spellcheck from within wp	-	-	Y	-	-	Y	Y
Background printing	Y	-	-	-	-	Y	-
Insert or overtype	Y	Y	Y	Y	Y	Y	Y
Delete line	Y	Y	Y	Y	Y	Y	Y
On-screen help	Y	Y	Y	-	Y	Y	Y
Headers and footers	Y	Y	Y	Y	Y	Y	Y
Soft spaces/returns	Y	-	Y	Y	-	Y	Y
Format whole document	-	Y	Y	Y	Y	Y	Y
Pagebreak indication	Y	-	Y	Y	Y	Y	Y
Page/line display	Y	Y	Y	Y	Y	Y	Y
Column manipulation	Y	Y	Y	Y	Y	Y	Y
Undelete block	Y	Y	-	-	-	-	Y
Undelete line	-	Y	-	-	-	-	Y
Save block	-	-	Y	-	-	Y	Y
Print multiple copies	Y	Y	Y	Y	Y	Y	Y
Print selected pages	Y	Y	-	-	-	Y	Y
Print block	-	-	Y	-	-	-	-
Embedded printer codes	Y	Y	Y	Y	Y	Y	Y
Display returns/tabs	-	-	Y	Y	-	-	-
Built-in foreign characters	Y	-	Y	-	Y	-	-
Catalogue files	Y	Y	Y	Y	Y	Y	Y
Delete files	Y	Y	Y	-	Y	Y	Y
Rename files	Y	-	Y	-	-	Y	Y
Type disk file	Y	-	Y	-	Y	Y	Y
Word count	Y	-	Y	Y	Y	-	-
Character count	Y	Y	-	-	Y	Y	-
Placemarkers	Y	-	Y	-	Y	Y	-
User-definable keys	Y	-	Y	Y	Y	-	-
Price (nearest pound)	£18	£20	£27	£20	£25	£50	£69



As the CPC machines can't fit all the program's features into memory, many overlays are necessary – and this means that to do certain tasks you must wait for bits of program to load from disk. Text moving, copying, even search-and-replace are all extremely slow. This happens because *WordStar* insists on showing on screen every change made – and we all know text output on the Amstrad is not lightning anyway.

Document size is limited only by the free space available on your disk. Unfortunately moving from top to bottom of a long file necessitates lots of disk accessing which slows work down considerably. And remember you have to have at least 50k of *WordStar* resident on every disk, unless you have a twin-disk system. NewWord requires dual disks. Neither likes you sneakily trying to change disks: crash.

GOOD NEWS

- Will be familiar if you've used it on other machines.
- Comprehensive list of functions.
- Just about any text-handling routine is possible.
- Large documents possible.

BAD NEWS

- Difficult to get to grips with.
- Slow and cumbersome.
- Don't switch disks while in operation!

NewWord

New Star Software Ltd (0277 22 0573), £69 disk – 6128 only

NewWord is a *WordStar* lookalike and workalike – a clone. Text files are interchangeable between the two and with a bit of attention can be read by other word-processors.

The tale is that the original *WordStar* programmers fell out with MicroPro about plans for revising the geriatric software – it's been around since the dark ages of a decade ago – and went off with the code in their heads (and a capital letter in the middle) to do it their own way.

Disk directories start out with files in the same jumbled order as MicroPro's. It's possible to reconfigure *NewWord* to sort them alphabetically, or by date or type – if you are prepared to wade through a massive manual. To calculate free space on the disk, I found I must save my text, get out of *NewWord* and use CP/M's Stat, then reload *NewWord*. I've never had any luck with the R option on the menu, which is supposed to run a program and come back to *NewWord* with less hassle.

Unlike *WordStar*, it's not possible to turn off page breaks, an irrelevant nuisance in magazine copy.

The main visible innovation from *WordStar* is that printer goodies such as bold or italic show on screen in reverse video. Timings are of a muchness, as you see in our chart – *New'* is a bit snappier than *'Star* in most things except loading itself (and credit here is no doubt due to our having stripped the help files from our *WordStar* disk). But there is still no comparison with the word-processors that work in the Amstrad's native operating system rather than in CP/M.

The ubiquity of CP/M means that versions of the software of either clone are available for almost any make of computer. Learn the system on one machine and you'll be familiar with it on any other. My final word: that's the only star it rates. **JN**

GOOD NEWS

- Shows printer effects on screen.

BAD NEWS

- Needs dual-disk system.
- Costs even more.

Pendown

Logotron (0223 32 3656), £19.90 disk only

Logotron is probably best known for its dealings with the BBC Micro: supplying schools with the popular Logo graphical language. It has now made a logical step to produce a 'child-centred word-processing environment for junior, middle and infant schools,' which looks set to put Logotron on the map, and provide an invaluable aid to learning both at school and at home.

Many word-processors are designed for professional typists intending to create lengthy documents. The printed copy, in general, bears little relation to the text displayed on screen. This happens because control codes are normally embedded within the text – powerful tools in expert hands but rather daunting for the beginner.

Because *Pendown* dispenses with such problems, making it easy to explore possible layouts on screen, it is ideal for both young children and the novice computer user.

Pendown is a what-you-see-is-what-you-get system. (The acronym for that is WYSIWYG, which some people try to pronounce as 'wizzywig.') In other words what you see on screen will be sent to the printer. The only unfortunate exception in *Pendown* is that the different fonts – bold, expanded, etc – are not shown on screen.

Pendown's screen shows 10 detailed pictures – 'icons' – at the bottom. Each icon corresponds to a function key, calling routines for disk management and text handling. The top of the screen is reserved for system information: cursor position and page width, length and number.

Between the information box and the icons is the page area. A page can be anywhere from 1 to 255 lines in length; its width can be 1 to 80 characters. You can define up to 255 pages – but if you have 255 pages, they can have only one line each! A compromise must obviously be made. As most people use A4 paper as single sheets in their printers, a useful page length would be 77. Of course there are not enough lines on the Amstrad monitor to show all the lines of a page; if you wish to see another area of a page, just move the cursor to the bottom or top of the text window and the next section will flick into view.

The first icon, which looks like the nib of a fountain pen, represents the writing menu. From here you can choose page width, page length, tab stops, mode (that is 40 or 80 columns), search-and-replace and justification.

Search-and-replace is restricted to complete words. Parts of

GOOD NEWS

- Nicely presented.
- Easily selected options.
- Planner and dictionary are excellent ideas.
- Manual is of high quality, both to read and in appearance.
- Not just a word-processor – an invaluable teaching aid.

BAD NEWS

- Disk only.
- You'll eventually want to upgrade.

How fast are they?

	Load word-processor	Load 10k text file	Save 10k text file	Cursor from top to bottom	Cursor from bottom to top	Replace "the" with "***"	Replace "***" with 10 characters	Re-format a paragraph	Copy block	Delete block	Merge 10k file
Pyraword	15.4	12.6	6.7	1.4	0.7	1.0	-	1.0	0.3	0.5	13.0
Pendown	13.5	11.1	14.6	0.3	0.3	14.8	15.0	2.6	0.6	0.4	-
Protext	12.9	5.1	6.8	< 0.1	0.3	4.0	4.5	0.3	0.3	0.3	5.8
Mini Office	17.5	21.9	15.5	0.3	0.3	115.4	147.8	0.7	1.1	1.3	26.5
Tasword	17.4	15.1	14.9	3.2	2.8	161.2	174.9	0.5	1.8	0.8	13.8
WordStar	14.6	10.3	16.2	8.0	8.4	15.8	19.5	2.2	3.0	0.5	18.8
NewWord	40.0	18.7	14.0	3.0	6.1	16.7	17.8	4.3	5.0	4.8	20.5

All timings are in seconds: from finished entry of command to reappearance of cursor.
Loading and saving times were taken from disk-based systems. The search-and-replace involved 180 occurrences.

a word cannot be altered using this system. Otherwise if you wished to alter `is` to `was`, for instance, there would be cases where `this` would turn into `thwas`, causing confusion to the beginner.

A disk is depicted by the next icon: the disk filing menu. Options include cataloguing the disk, switching between drives, saving, loading and erasing files. To choose an option is simple: just move the cursor. When the function you want is highlighted, press the Enter or Return key.

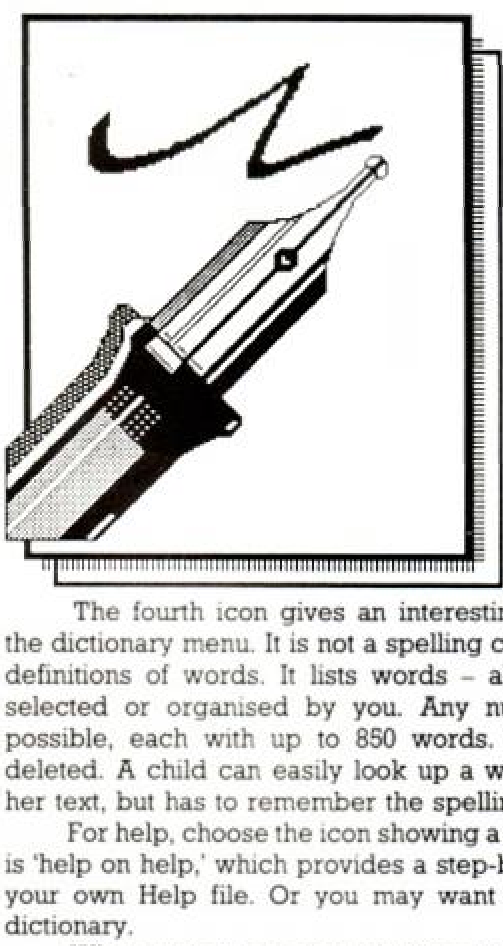
Printing is a joy. All options come under the icon appropriately displaying a printer. You can print a single page or several pages of text, normal or double spaced. The option 'Epson-special' gives a choice of character sets: Moderna, Jumcomp, Jumbo, Horizon, Gothic and Chunky. You must be careful not to try to put too many of these characters on a line, for they are much larger – they also take twice as long to print. The results are good though.

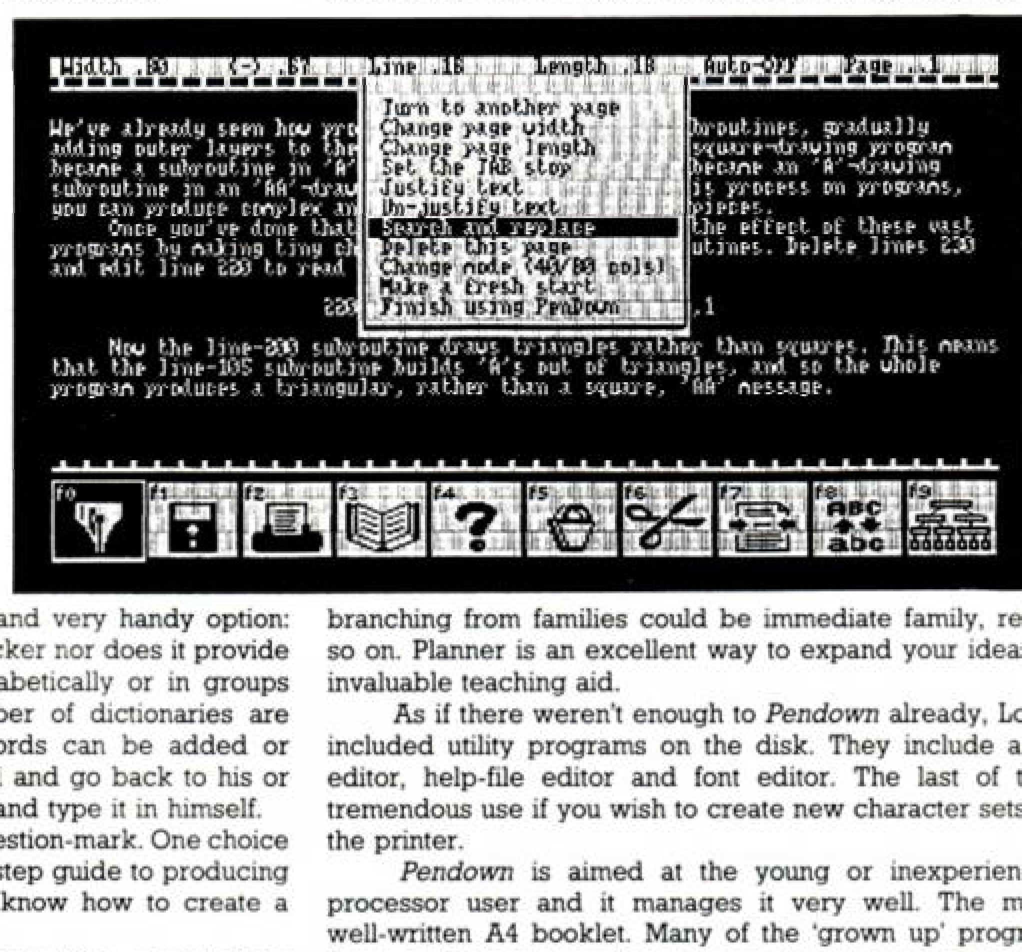
the cursor to the right and further words are highlighted. Finally press Delete to delete the highlighted block. Or to copy them to another position, press Return to indicate the end of the block, then move the cursor to where you want it and press Copy.

To centre text, place the cursor on the required line. A quick press of the icon showing two arrows facing each other, and it's done.

Another fairly useful icon is case change. If a letter is in upper-case (a capital letter), this function key will change it to lower-case – or vice-versa.

The final icon is 'the Planner'. Its function is to lay out in tree-structure form a plan of how an article or essay could be written. It's a pre-writing facility. Say you wished to write an article on 'People'. Using Planner, you begin with the title. From there you branch out, for example, families, friends, personalities. The next





The fourth icon gives an interesting and very handy option: the dictionary menu. It is not a spelling checker nor does it provide definitions of words. It lists words – alphabetically or in groups selected or organised by you. Any number of dictionaries are possible, each with up to 850 words. Words can be added or deleted. A child can easily look up a word and go back to his or her text, but has to remember the spelling and type it in himself.

For help, choose the icon showing a question-mark. One choice is 'help on help,' which provides a step-by-step guide to producing your own Help file. Or you may want to know how to create a dictionary.

When you cut or copy text it is stored in a 'bin' – a part of the computer's memory. The contents of a bin can then be incorporated into your text at any time. Up to 50 lines of text can be held at a time – roughly equivalent to 350 words. Choose the icon displaying a couple of bins to empty the contents. Or you can rummage through their contents.

The next icon is a pair of scissors. To cut out (delete) a word or block of words, put the cursor somewhere on the first word. Press the scissors key and the word becomes highlighted. Move

branching from families could be immediate family, relatives and so on. Planner is an excellent way to expand your ideas and is an invaluable teaching aid.

As if there weren't enough to *Pendown* already, Logotron has included utility programs on the disk. They include a dictionary editor, help-file editor and font editor. The last of these is of tremendous use if you wish to create new character sets to send to the printer.

Pendown is aimed at the young or inexperienced word-processor user and it manages it very well. The manual is a well-written A4 booklet. Many of the 'grown up' programs could learn a thing or two about clear, concise presentation. There is nothing to match *Pendown*'s ease of use. Its features put many standard word-processors to shame. If you have yet to use a word-processor, make it a happy experience and use *Pendown*.

AA

See special offers

PROBLEM ATTIC



We try to solve your problems with Arnold – nothing

Moving pixels

Please could you print a program showing how to move a single pixel around the screen under your control, without leaving a trail of pixels behind it? If possible please don't use data statements as I can't decipher them.

M Lovelady
Litherland, Liverpool

Here is a short program to move a pixel: control is via the cursor cluster. The variables x% and y% *refer to the current x and y positions of the pixel;* a% and b% *are the old x and y positions, that is, how far up and how far across the pixel was before it was moved. In this way, the pixel can be moved and the old one deleted.*

```
10 MODE 2
20 x%=320:y%=200:a%=x%:b%=y%
30 IF INKEY(0)>-1 THEN y%=b%+2
40 IF INKEY(2)>-1 THEN y%=b%-2
50 IF INKEY(8)>-1 THEN x%=a%-1
60 IF INKEY(1)>-1 THEN x%=a%+1
70 IF y%>399 OR y%<1 THEN 30
80 IF x%>639 OR x%<1 THEN 30
90 PLOT x%,y%,1:PLOT a%,b%,0
100 a%=x%:b%=y%:GOTO 30
```

Printing is no joy

Help! I am a proud owner of both a 6128 and DMP-2000 printer. Using the sample Basic listings printed in the DMP manual, I know that it is capable of many print types. I'll be damned if I can get either *Pocket WordStar* or *Mini Office II* to print out anything other than draft quality. What must I do to get NLQ (near-letter-quality) print using either of these packages?

With *Pocket Wordstar*'s installation, I got terribly lost when it came to identifying terminal and printer. Please put me out of my misery and offer a solution.

Nanette Ferrie
Glasgow

Starting with Mini Office II (the simpler of the two): You can use embedded print commands within your document. So that the word-processor does not confuse these instructions with the text itself, they are shown in inverse. These embedded commands won't appear in the final printing. They are accessed by the function keys.

Pressing f1 *causes the caret symbol (ˆ) to appear in the text. After this you may enter codes you want to send to the printer; each new code must be separated by a comma. Terminate the sequence with a non-numeric character: ˆ27,40,27,120,1X will switch on NLQ; ˆ27,120,0X has the opposite effect. Another example: condensed print on, ˆ15X; and off, ˆ18X. All the control-code sequences are in the printer manual – it shouldn't be too hard selecting the desired effect in this way.*

Wordstar *is rather a different kettle of fish. You must first run the Install file by typing* INSTALL at the A> *prompt. When an options menu appears select First Time Installation – further sub-menus will now display themselves: from the Terminal Menu pick 'U – leave unchanged', the reason being that the correct terminal mode will have been installed by the distributor. When the Printer Menu appears choose 'M – I/O Master / OEM Printer Combination'. No communication protocol should be chosen. And finally from the 'Driver Menu', take option 'L – CP/M "LIST" device (LST:)'.*

After completing the install procedure, you should be ready to use WordStar. *Create your document and where you want special printer effects, type Control-P followed by the letter (from a menu if you hesitate long enough) for the required function. Underlining, for instance, is turned on by Control-P followed by S, and off by the same control sequence. If you still have problems or the control-code sequences do not function correctly, you must re-enter Install and when you reach the last question – 'Are the modifications complete?' – answer* No. *You will now be able to alter the control-codes that are sent to the printer – full explanation is given in the user manual under the section 'Customisation notes'. Unfortunately too much space would be needed to fully explain that chapter, but careful reading is all that is required.*

And we must admit, Nanette, that until you – and a few others – asked, we in the AA office had for months avoided the trouble of unravelling WordStar's *abstruse printer-installation rigamarole. One more reason why we prefer* Protext.

Not in the mood for jumping

Please could you explain how the jumpblock works? This has puzzled me for a long time. I have a good knowledge of Z80 machine-code.

Ian Ashley
Chorleywood, Herts.

First an explanation of what a jumpblock *is. It's a series of jump instructions placed at well-known locations in memory. The jumps are to various routines in the firmware that you may wish to use. If the firmware is later revised, Amstrad promises to keep the jumpblocks at the same memory locations (altering only their contents), thus maintaining compatibility – as seen with the 464, 664 and 6128. (It's usually this sort of thing in question whenever the words 'legal' or 'illegal' are used in connection with programming.)*

The jumpblock is placed in ram so that you can alter the entries in it. This allows you to trap particular entries and substitute your own routine in place of the standard firmware.

You may wonder how the correct roms are switched in before the jump is made. Bits 14 and 15 of the actual jump address take care of this. If bit 14 is 0, *the lower rom is switched in; a* 1 *switches it out. Similarly bit 15 controls the upper rom, but in reverse: if it is set (ie., is* 1*), the upper rom is switched in; a* 0 *and it is switched out. For example the jumpblock starting at location &BC0E contains the three bytes &CF, &CA, &8A. (In the 6128 machine the bytes will be &CF, &E9, &8A.)*
This does not indicate a jump to location &8ACA; a binary representation of &8ACA will make it more obvious:

1000101011001010 = *&8ACA*

Bit 15 is set indicating that the upper rom is on;
bit 14 is off indicating that the lower rom is on;
bits 0 to 13 indicate the actual jump address, which is &ACA.

Faster-running Z80

For Christmas I received the book *The Anatomy of the CPCs* (First Publishing). On reading a section about the Z80 I came across this blurb on the Z80:

> *Clock Pulse and Power Supply*
>
> Ø: Phi: The phi input gives a clock pulse for the processor. As the Z80 is a static IC, the clock pulse can range from 0Hz to the specified maximum frequency...

From this passage is it acceptable to think that somewhere inside my 6128 there is something stopping my Z80 running faster than





PROBLEM ATTIC

is too simple or too complicated for our experts

4MHz? I know the Z80 can run at 8MHz, so is it possible that by replacing the thing that specifies the maximum clock pulse, my Amstrad could be speeded up?
Jason Titmas
Lowestoft, Suffolk

The gate array inside your 6128 is responsible for supplying the Z80 with a clock pulse of 4Mhz. That is one of its functions. Generating video signals, controlling the monitor mode, rom selection and generating the interrupt pulse are a few of its other tasks.

Unfortunately Amstrad has kept full details on this extremely useful integrated circuit a closet secret. If you tried to purchase it from an electronics shop, you would have no luck.

Your CPC's heartbeat signal is generated by an oscillator circuit made up of two gates. The generated frequency is 16MHz. This signal is fed to the gate array, where it is quartered to give 4MHz. To alter that, the oscillator circuit would need changing. Even if you managed that, there is no conceivable way you could get a new gate array to handle the higher frequency. And if you could, the rest of the firmware would need to be altered as countless timing constraints would be broken – keyboard scanning, rom and ram switching and frame flyback would be just the start of your headaches.

To make matters worse: having an increased clock rate may not decrease the time required to execute any given instruction. It may not be possible to fetch instructions and data from memory any faster.

So a simple answer to your question is no, don't even think about it!

Music, but not from Basic

I have recently purchased the *Music System* from Rainbird and although it's better than the *Wham Music Box* on my Spectrum, it lacks one important feature: the music I compose cannot be saved and then used in my own Basic programs.

Do you know how I can save the music and then load it into Basic programs? Is there a way round this problem?
A Haynes
Wordsley, West Midlands

You may think this is a rather non-answer, but the fact is that without virtually re-writing the Music System, *I can see no way around your problem. What I can suggest, though, is that you purchase* EMU (Electronic Music Utility) *from Gremlin. It is sold under the Discovery label at £15 on cassette and £18 on disk – not only can the music be incorporated into your own Basic programs, but it will play under interrupt – letting Arnold carry on with more important tasks.*

The saving puzzle

I'm very new to computers and especially my 6128, so I find your magazine a great help. But the thing that puzzles me altogether is transporting programs from tape to disk. How can it be done? I've tried what the manual says in typing `|TAPE.IN`, but the game loads and that's it. Please put me out of my misery.
Warren Diffey
Peterhead, Aberdeenshire

There are two file-types you will need to diferentiate when transferring programs. One is a Basic file, the other is binary. If you catalogue a cassette, a Basic file will have the character '$' associated to it, and a binary file will have '&'.

If it's a Basic file you wish to transfer then type in direct mode (that is, don't use line numbers):

```
|TAPE.IN
LOAD"file1"
SAVE"file2"
```

At 'file1' fill in the name of the program you wish to load. When saving to disk, remember that the name for file2 can be a maximum of eight characters – that's the finicky disk operating system for you, I'm afraid.

Loading and saving of binary files brings a few new problems: you need to know where the program starts in memory, length of the program in memory, and if applicable, the execution address (the position in memory that the program is run from).

To help find these, type and run the program below. It is an enhanced catalogue which will display all the required information:

```
10 ' Extended Catalogue
20 FOR a=&8000 TO &800B:READ b$
30 POKE a,VAL("&"+b$):NEXT:MODE 2
40 PRINT"PLEASE WAIT...":PRINT
50 CALL &8000
60 PRINT "PROGRAM NAME ";
70 FOR a=&4000 TO &4010:b=PEEK(a):IF b=0 THEN GOTO 80
   ELSE PRINT CHR$(PEEK(a));:NEXT a
80 PRINT:PRINT"PROGRAM LENGTH "; PEEK(16384+24)+256*P
   EEK(16384+25)
90 PRINT"START ADDRESS ";PEEK(16384+21)+256*PEEK(1638
   4+22)
110 a=PEEK(16384+18):a=INT(a/2)
120 IF a=0 THEN PRINT"BASIC" ELSE IF a=1 THEN PRINT"B
    INARY" ELSE PRINT"ASCII"
130 IF a=2 THEN b=PEEK(16384+26)+256*PEEK(16384+27):
    IF b<>0 THEN PRINT"EXEC ADDRESS ";b
140 PRINT:PRINT:GOTO 50
150 DATA 3E,2C,11,40,00,21
160 DATA 00,40,CD,A1,BC,C9
```

When run, the program will display all relevant file information. For example, suppose the following appeared:

```
PROGRAM NAME CODE
PROGRAM LENGTH 4578
START ADDRESS 34000
BINARY
EXEC ADDRESS 34100
```

Jot down whatever is displayed as you will need it to load from tape and eventually save to disk. Using this information, type in direct mode:

```
|TAPE.IN
MEMORY 33999
LOAD"CODE"
```

Note that the figure following the Memory command is one less than 'start address'. The binary program should have succesfully loaded into memory. Once this has occurred, type (again in direct mode):

```
SAVE"CODE",B,34000,4578,34100
```

Remember a few points when saving a binary file:
`SAVE"filename",B,<START>,<LENGTH>,<EXEC>`
The filename must be in quotes followed by comma B. This tells the system that a binary file is to be saved. Following B is another comma with the start address of the program. Next comes another comma and the length of the program. The last parameter may not always be present (execution address).

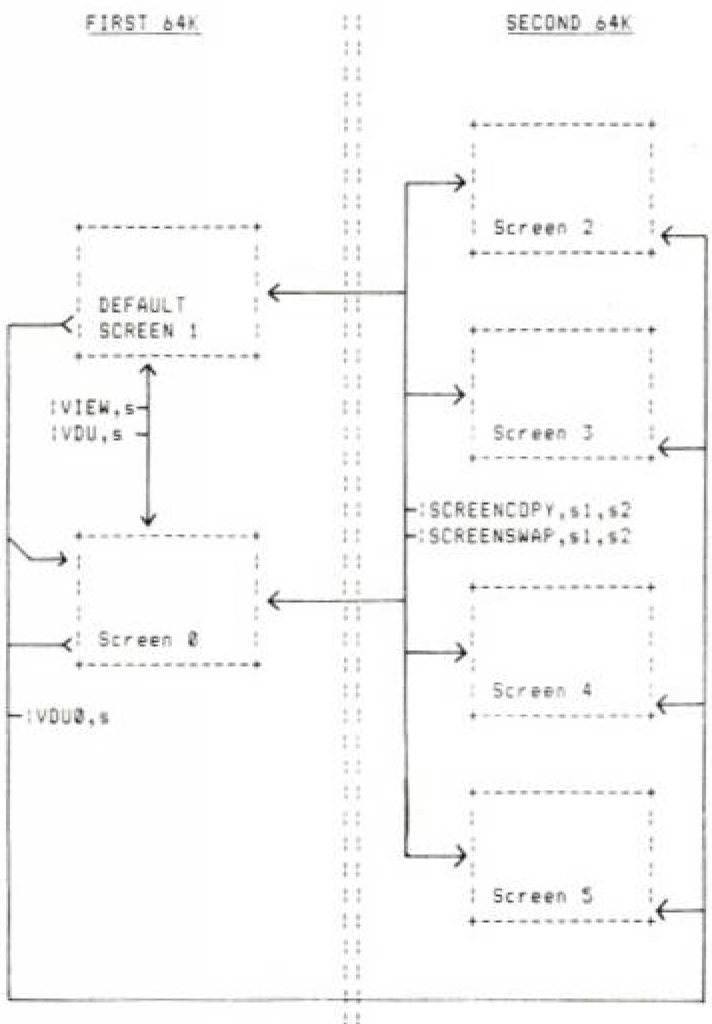
HOT TIPS

Hints this issue range from surgery on your Quickshot to an exposé on your bankmanager. The best Hot Tip each month receives a flaming cheque!



Bankmanager exposed

During an idle moment I used a memory-dump utility to look inside *Bankman* (on the CP/M utilities disk). This revealed three RSXs: |VIEW, |VDU and |VDU0, which are not documented in the CPC 6128 user manual. They cannot be accessed by using the *Bankman* loader supplied on the CP/M Plus disk, but the following will install both the hidden and documented RSXs.




```
10 MEMORY &3FFF
20 LOAD"BANKMAN.BIN",&8000
30 CALL &8000,1
```

With some experimentation I have been able to work out how they are used and potentially how very useful they are.

The diagram will make the explanation clearer. CPC 6128 users already know that they can copy the default screen (screen 1) to or from one of any four locations (screens 2 to 5) in the second bank of memory, or exchange screens using |SCREENCOPY and |SCREENSWAP.

What the user instructions do not tell you is that there is also an alternative screen location in the first bank of memory – screen 0. |VIEW,s will let you look at either screen, using s=1 or 0. And |VDU,s will let you write to either screen, using the same parameters. To write to one screen while viewing another usually requires both commands in conjunction, like this: |VDU,0:|VIEW,1.

|VDU0,s is equally powerful. This must be used in conjunction with a preceding |VDU,0 command; it lets you write to a specified screen in either bank of memory using s=0,2,3,4 or 5, while screen 1 is exchanged with screen 0 (0 can already be in view if *s* is between 2 and 5, but the screens will not be exchanged).

Try entering |VDU,0: |VDU0,3: MODE 1: PRINT "SCREEN 3". You are now looking at screen 0. Note that screen 0 hasn't yet been written to. Return to screen 1 with |VIEW,1 (careful – you cannot see what you type). Note that this screen hasn't changed either. To view screen 3, exchange it with screen 1 by entering |SCREENSWAP,3,1 – input will still invisible until the command has been entered.

|VDU,s will restore output to screen 1 or 2. The Mode command was issued to correct hardware scroll.

Another undocumented feature is that |SCREENCOPY and |SCREENSWAP can also access screen 0.

When used with one another or the |SCREEN commands, the possibilities are endless. For instance, you can write menus or draw images on invisible screens while displaying other screens, and store them for instant display.

To explain the full inter-relationships of the commands would take up too much space – I suggest experimentation. Why such useful RSXs were hidden is totally incomprehensible to me.

J D Crabtree
Haughton, Darlington

Talking Gigo

Here is my solution to running *GIGO* with Superior Software's *Speech!* program: first LOAD"Speech" then type RENUM 500,10 then MERGE"GIGO". Finally make the following alterations to the program:

```
315 GOSUB 500
340 NEXT b:PRINT#3,UPPER$(MID$
    (a$,m,1));:NEXT m:IF L<>0 THEN
    FOR a=0 TO 500:NEXT a:|SAY,@a$:
    LOCATE#2,1,4:PRINT #2,a$(0):FOR
    a=0 TO 200:NEXT a
```

Delete lines 540, 550 and 630 and add line 705:

```
705 RETURN
```

S Sandles
New Tredegar, Gwent

Undazzling

I dazzled with Roy Makely's *Superdazzle* (Hot Tips 16) – nice one, Roy – but how to undazzle again? Oh dear, not so easy. Border 0 doesn't work; it appears nothing save a reset will do the trick, which makes the routine less useful. But surely something will undazzle – it must. Well, POKE &801B,9 works.

Graham Redman
Teynham, Kent

Your poke certainly stops the border dazzling, Graham. But unfortunately it sends an illegal value to the gate array, and the computer begins to behave rather oddly afterwards. Mine tended to crash rather rudely on most occasions. Here's the correct solution:

```
10 ' Undazzle
20 FOR t=&8040 to &8046:READ a$
30 POKE t,VAL("&"+a$):next
40 CALL &8040
50 DATA 21,15,80,CD,E6,BC,C9
```

An easier solution

The December issue had a type-in entitled *Motor Control*. There is a much easier way to achieve this, as shown in the following three lines:

```
10 KEY 131,"CALL &BC6E"+CHR$(13)
20 KEY 132,"CALL &BC71"+CHR$(13)
30 NEW
```

If this is run it will program the function keys *f1* and *f2* to be motor on and off respectively.

J Evans
Leek Wooton, Warwick

The fourth mode

I've written a program that creates a new mode. This is done by directly accessing the CRTC (cathoderay-tube controller) with `OUT` commands. It doubles the size of all displayed characters, changing the screen size to 20, 40 or 80 by 15. Everything works fine except that border and inks can't be altered.

```
1 ' The fourth mode
2 ' Nick Speakman
3 ' Amstrad Action
10 MODE 0:BORDER 0:FOR a=0 TO 15
20 READ b:INK a,b:NEXT
30 DATA 0,18,2,6,9,1,3,8,24
40 DATA 20,4,12,26,15,16,19
50 OUT &BC00,0:OUT &BD00,127
60 OUT &BC00,4:OUT &BD00,18
70 OUT &BC00,5:OUT &BD00,15
80 OUT &BC00,6:OUT &BD00,15
90 OUT &BC00,7:OUT &BD00,17
100 WINDOW £0,1,20,1,15
110 ORIGIN 0,160
```

Nick Speakman
Warrington, Cheshire

Muddling Modes – follow-up

Here is some further information regarding *Muddling Modes* (Hot Tips, AA 16). The locations at &B1CF to &B1D2 are the pixel masks used by the screen-writing routine in the 464 rom. The 664 and 6128 use a different routine which calculates the masks for each mode, rather than transferring them from rom to ram; there are therefore no masks to alter. The locations &B7C6 to &B7C9 have nothing to do with pixel masks – &B7C6 is in fact the high byte of the screen base address (which is of course &C0). There is thus no way for 664 or 6128 owners to achieve mixed-mode writing without resorting to interrupt-driven screen splitting (but see below for the next best thing). Readers with a 464 might like to try a similar effect mixing modes 1 and 0 on a mode-1 screen; this gives the advantage of different inks, and in fact some inks will give a stripey effect:

```
MODE 1:POKE &B1C8,0:POKE &B1CF,&CC:
POKE &B1D0,&33      [return]
```

Stripey inks can also be achieved by poking the ink masks (rather than the pixel masks):

	464 users	*664 and 6128*
pen	&B28F	&B72F
paper	&B290	&B730
graphics pen	&B338	&B6A3
graphics paper	&B339	&B6A4

If you have a disk drive attached then a very useful poke is `&A701` – it is the disk *user* number. What is extremely useful is the ability to see any erased files by poking &A701 with &E5. If, for example, you unwittingly erase an important file then here is a method of retrieving it without having to fork out for an 'unerase' program:

```
POKE &A701,&E5:CAT:LOAD"filename"
|USER,0:SAVE"filename"
```

Using this method it is possible to make your files undetectable to a catalogue or directory (I use my initials): `POKE &A701,&EF`

Other handy pokes (664 and 6128 only) use locations &B631 and &B632 and values &FF and 0 to turn shift lock and caps lock on and off respectively, eg:

`POKE &B631, &FF` – shift lock off

Finally, a little machine-code to provide double-width letters in any mode. The command syntax is

`|WPRINT, streamnumber, "text to be printed".`

If stream is omitted, the text will be sent to the current screen. However, 464 users must use the command as follows:

```
a$="text to be printed":|WPRINT,@a$
```

664 and 6128 owners have no such problems: text can be handled directly.

```
1 ' Double-width characters
2 ' by Ewen Flint
3 ' Amstrad Action   March 1987
10 DATA 21,09,A0,01,0D,A0,C3,D1
20 DATA BC,00,00,00,00,11,A0,18
30 DATA 07,57,50,52,49,4E,D4,00
40 DATA FE,01,D8,28,06,DD,7E,02
50 DATA CD,B4,BB,DD,6E,00,DD,66
60 DATA 01,46,23,5E,23,56,EB,E5
70 DATA C5,CD,3A,A0,C1,E1,23,10
80 DATA F6,C9,7E,FE,20,38,39,DD
90 DATA 21,EC,A6,CD,A5,BB,E5,CD
100 DATA 06,B9,E1,06,08,C5,7E,06
110 DATA 04,07,F5,CB,12,F1,CB,12
120 DATA 10,F7,06,04,07,F5,CB,13
130 DATA F1,CB,13,10,F7,DD,72,00
140 DATA DD,73,08,DD,23,23,C1,10
150 DATA DC,3E,FE,CD,5A,BB,3E,FF
160 DATA CD,5A,BB,C9
170 MEMORY &9FFF
180 FOR a=&A000 TO &A07B:READ a$
190 POKE a,VAL("&"+a$):NEXT
200 CALL &A000:b$="WPRINT OPERATIONAL"
210 |WPRINT,@b$:NEW
```

For the 464 machine the two italicised data items in line 90 must be altered to `&A0,&AB`.

Ewen Flint
Calside, Dumfries

Hackers only

If staying up half the night trying to discover Arnold's innermost secrets is what keeps your adrenalin flowing, this section is for you. Have you discovered something that will shock the nation? Send it to Hackers Only, *Amstrad Action*, Somerton, TA11 7PY.

And if you don't understand what is written in this section, it's bad luck. You'll get no explanation, for this is where the hackers hang out.

Tackling the XPB

At memory locations &A890 through to &A8A8 lies the extended disk parameter block (XPB) for drive A. Drive B's starts at &A8D0 and finishes at &A8E8. Look here for information regarding disk format type. Altering this will let you read 'foreign' disks and create new formats. Below is a table of the bytes found when using a disk in Data format (the example assumes drive A is in use), with a brief explanation on what they do or represent.

&A890	&24	records per track (each record is 128 bytes long)
	&00	records per track; high byte
	&03	log_2BLS –1
	&07	BLS/128 –1
	&00	if DSM<256 then BLS/1024 –1 else BLS/2048 –1
&A895	&B3	DSM, size in blocks (represents amount of k on disk)
	&00	DSM, high byte
	&00	number of directory entries; high byte
	&C0	no. of dir blocks; bit significant (&80=1, &C0=2...)
&A89A	&00	number of directory blocks; high byte
	&10	bit-signif checksum vector: typically dir. entries/4+1
	&00	checksum vector; high byte
	&00	number of reserved tracks; points to directory track
	&00	number of reserved tracks; high byte
&A89F	&C1	first sector number
	&09	number of sectors per track
	&2A	read/write gap length
	&52	format gap length
	&E5	filler byte when formatting
&A8A4	&02	log_2(sector size) –7
	&04	records per track, which equals sector size/128
	&00	current track
	&00	not aligned
	&00	format automatically selected unless set to &FF

BLS, which indicates the number of bytes in a block, can be 1024, 2048, 4096, 8192 or 16384.

With this knowledge tucked securely up your sleeve, you should be able to play around with disk formats and come up with rather interesting results. Lack of space this issue means that the second part of this article will appear next month. I shall look at putting this theory into practice and create a completely new format. If anyone cares to share knowledge on this or another technical front, please write in – it could be rewarding. **RpM**

Best-laid plans

Pat McDonald tries to organise his world

PlanIt

Database Software (061-456 8383), £14.95 tape, £17.95 disk, all CPCs

Oh happy day! It has finally occurred! I cannot believe it! I have received a review copy that has *no* bits missing! Seriously though, public-relations people should not complain about poor reviews if the manuals, disks, roms, boxes, competition leaflets, dentures or whatever I get bear little resemblance to what appears in the high-street computer shops.

Enough! Database, long renowned for cheap, good-quality serious software has produced another compendium that will probably take a running jump high into the charts. *PlanIt* – subtitled 'the COMPLETE personal organiser' – contains a financial diary, an electronic card-index and a home accounts program.



To get into any of these, you just select from a menu, using the cursor keys and Return. All the menus are in mode 1, and so are easy to read, but the programs sometimes work in mode 2, which is not so good if you have a colour monitor or modulator.

The program prompts you often and rarely fails to tell you how to proceed from your present place. In other words, the modules are very user-friendly.

The press release is anything but modest. 'Plan your life with the complete personal organiser.' 'Allows users to control complex aspects of their daily lives ... with a few simple keystrokes.' Read on for the truth.

The financial diary is designed to have one file in memory at a time – this is known as the Activity file. The idea is that you type in the date, time, any relevant notes and the amount of money involved (it is a financial diary, not an ordinary one). You can store around 200 rendezvous before you run short of memory. Once you have done this, you can commit the information into a series of Monthly files. This is known as Archiving, and is just a method of storing old information that you don't need on hand but which is still available for reading. You can even re-edit it, though I have no idea why – for fiddling the books, perhaps?

This financial diary is obviously for people involved in a lot of meetings which involve money and which naturally, have to be accurately recorded; for example, salesmen keeping records of expenses. This is not just a notebook, though – you can arrange fixtures months or even years ahead. Indeed there is an option to call up a calendar program that works from 1900 up to 9999 AD, which is a handy thing except that I doubt if many people will still be using it in 9999.

I would say that the financial diary is the most professionally programmed part of *PlanIt*, although I myself would not find it very useful.

The card index makes no pretence at being a state-of-the-art database. It simply tries to replace the ordinary card index with a paperless one. It is not at all difficult to use. Each card is known as a record, and each record has a number of fields. The first is already set up as the Surname field, the second as the Christian name. The third, fourth, fifth and sixth are used for the address and the last for the telephone. Only seven fields? Yes, that's all, folks!

What is worse, the title of the field is limited to eight characters, so 'Telephone number' has to become 'Phone no'. And each actual field – the name or address – can be only 22 characters long. Even humble *Amfile*, which was free with the Christmas issue of *AA*, could do better than that. The manual does not mention what the capacity of the card index is, but the PCW version can hold around 600 records on one drive, so I imagine that this version would hold rather less – perhaps 200 or so records.

The style of documentation for the card index is the same as for the other modules. What is missing is a little hard information.

The home-accounts module is what most people will buy *PlanIt* for, since it is the most useful. The program can handle up to 24 accounts, for things like telephone, electricity, mortgage, computer software etc. To pay for these, you have a cash account, up to nine different credit-card accounts and your bank account. You can enter up to 400 transactions between these accounts during a month, and at the end of a month you receive a statement of just what has gone on.

The only trouble with putting your household budget onto a computer is that it does require a lot of effort to make it all work. I do know people who use their home computers for this, but they have had to spend time on it. I suppose it is a bit like typing in a long listing that has to be right.

'Personal' accounts is how the manual names this section. I cannot see anyone completing 400 financial transactions a month for just one person, which is why I renamed it 'Home' accounts.

'Loan' is a simple loan calculator included on the disk. I really do not understand why, as most people can do this quite happily (in half the time it takes to tap in the numbers on the computer) using just a pen and paper.

The programs are all easy to use, and a lot of patient work has gone into making the presentation really quite excellent. The manual is exemplary – documenters everywhere, take note. It does not give the capacity of the card index, but as this will vary greatly from use to use, I am not too upset. Hard copy on a printer is easily obtained from within the programs, and is pleasing to the eye.

My only real complaint is that *PlanIt* does not have anything like the potential of *Mini Office II*, which was another Database offering. If you are in need of a simple accounts program, a card index and a financial diary, this represents excellent value for money. I simply cannot think of many people who would want to buy it.

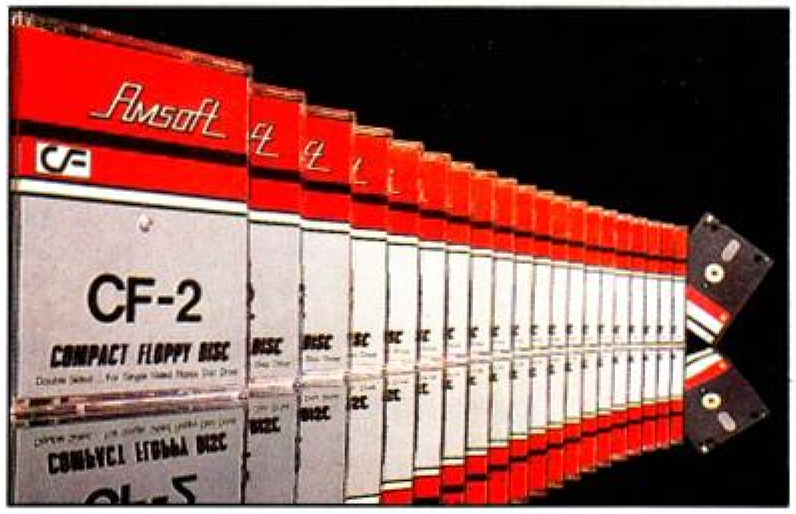
AA

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COMPILE YOURSELF

Richard Monteiro interprets another new tongue for the Amstrad



BCPL

Arnor, ☎ 01-684 8009, £39.95 disk plus rom

BCPL, often described as a systems programming language, is indeed very good for writing operating systems, compilers and word-processors. It is, however, an excellent general-purpose language. Designed by Martin Richards at Cambridge in 1967, it is one of the more mature languages available.

Basic is usually an *interpreted* language. When a program is run, the Basic interpreter reads each line and executes the appropriate machine-code instructions. This happens as every single line is encountered, making Basic painfully slow when compared to a machine-code program.

By contrast, BCPL is a *compiled* language: the source-code must first be created using any editor or word-processor capable of creating an ordinary Ascii file. The package contains a rough editor to run under CP/M (another for Amsdos), but I'd advise you to forget it and use your own favourite word-processor. The finished Ascii file is then submitted to the compiler, which translates it into machine-code instructions. The machine-code can then be saved and run. The disadvantage of a compiled language is that you have to wait for the program to be compiled each time before you can test it.

Arnor, up to its usual tricks, has made sure this is not a problem with its BCPL version: it compiles very rapidly. The CP/M version of the compiler takes a file containing BCPL source-code and produces a COM file containing an executable CP/M object-code program – there is no intermediate compilation stage.

The Amsdos disk and rom versions are identical (one is faster to start up than the other; that is all). The major difference between CP/M and Amsdos versions is that the CP/M version lets you include source files within other source files. The Amsdos version does not cater for this, but it allows the inclusion of stored text produced from Arnor's *Maxam* or *Protext*.

Basic and Pascal need many types of variable – string, integer, real. BCPL (nobody seems to know what the letters stand for) does away with this need, making it very powerful and flexible. Indeed there are no variable types – all variables are simple numbers; other types and structures are achieved by using the variables differently. As a result of this flexibility, BCPL lets the programmer access any part of memory (indeed any bit). Things can be done that are normally only achieved in machine-code.

The price for this freedom is sparse error-checking: it is quite easy to program a jump to an illegal address without BCPL batting an eyelid.

When you rush home with your new language and pull out the contents of the BCPL package, you will find a disk containing BCPL running under CP/M 2.2 or 3.1 on one side; the other side contains an Amsdos version. Or if you like things instantaneous, Arnor has supplied a rom as well. The CP/M versions will run on either CPC or PCW Amstrads.

A BCPL program is made up of a number of named procedures, each quite separate. There is one special procedure, called `start`, which must be present in every BCPL program – this is where execution will begin. More advanced terms include block and compound commands – words often thrown about when dealing with a structured language. Examples of other structured languages include C, Modula 2 and Pascal. Locomotive Basic is most definitely not structured.

As mentioned earlier, most languages have a number of variable-types. BCPL has just one internal variable type. This can be assigned a single-word value – a 16-bit pattern or two bytes. The meaning attached to the variable is determined by the way the programmer uses it. Following are short BCPL programs demonstrating how different variable types can be simulated:

Integer:

```
LET number=?
number:=42
```

Character:

```
LET char=?
char:='A'
```

String:

```
LET text:="This is the text"
```

The BCPL language is best considered in two parts. First the standard language, comprising the commands and syntax for expressions and constants. Second the input/output library routines, which are mostly procedures written in BCPL – these include printer, screen and keyboard drivers.

Supplied on the disk are several utilities. The debugger is the most useful. It will help you develop and enhance your BCPL programs. The disk also contains several BCPL programs open to your scrutiny – even a playable space-invader game. By examining the programing techniques in these you should grasp, fairly quickly, all the complexities of BCPL.

BCPL is most likely to appeal to the user with Basic tucked firmly under his hat, or even to the person that likes taking on a new challenge. Arnor's clear, concise manual will have you programming confidently very rapidly. It's excellent value for money when you consider what you get: a completely new language on disk, a rom thrown in as well, a hefty manual, several useful programs (and a game) not forgetting countless enjoyable hours teaching yourself a new language.

Perhaps you are fed up with blasting aliens or even displaying your bank balance in 101 different ways – whatever the reason, you could try your hand at BCPL.

GOOD NEWS	BAD NEWS
■ Rapid compiling. ■ Fast execution speeds. ■ Not overly complicated to learn. ■ Makes a change from shooting aliens and word-processing. ■ Excellent value for money.	■ Rather an old, little-used, language. ■ Not enough example listings in the manual.

NUMBER CRUNCHING

Can the latest spreadsheet from ASL shuffle your data into shape? Richard Monteiro gives it the going-over.

Matrix

Audiogenic Software Ltd, ☎ (0734) 30 3663, £34.95 disk

ASL claims that *Matrix* is 'probably the most powerful and versatile spreadsheet ever seen on a home computer.' This may be true to a certain extent. But don't kick the stool just yet if you have already forked out for a similar product – read on and find out exactly what *Matrix* is and isn't capable of.

What is a spreadsheet? And what do you do with it? If you need to manipulate large amounts of numeric data then a spreadsheet is an invaluable, time-saving aid. A spreadsheet is a set of boxes or *cells* laid out in rows and columns – the electronic equivalent of Scrooge's ledgers that poor old Bob Cratchett and his quill pen slaved over back in Dickens' day.

Once numbers have been entered in all the boxes, rows and columns had better add up. Or you can perform more involved mathematical functions on them. What if you can change a few figures? What happens to the results? It's far easier for Arnold to cook the books than it was for Scrooge. Nowadays, that sort of 'what if?' fiddling is called mathematical modelling or financial projection.

Matrix is more than just a spreadsheet: it can turn data into graph form, it has a simple built-in word-processor and a handy calculator function – what it can't do is take your dog for a walk.

The rows and columns are numbered, so that any cell can be identified by its row and column. Typically `R3C11` refers to row three and column eleven. Reading the manual suggests there is no limit to the number of rows and columns – in theory this may well be correct. In practice it is limited by memory. I found that a block of 100 by 100 cells was the maximum; if you try entering more data you will be greeted with `There is a PROBLEM: INSUFFICIENT MEMORY`. If you use other aspects of *Matrix* such as the word-processor or notebook, your limit will be lower.

Data can be of three types:

- numeric – two decimal places unless you alter to suit
- text – which serves only to label a column or row and cannot be used in formulae
- formula – which evaluates to a numerical result.

Formulae can be expressed in numerous ways. For example, `R4C2 + R5C2` would add the numbers held in those two cells. When entering a formula you can put the cursor on the required cell and press Copy to insert the cell number into your formula automatically – very nice.

The formula above was an example of *absolute referencing*. Other possibilities include *relative referencing*, which lets you deal with cell positions relative to the cell containing the formula, and *range referencing*, with which you can perform a function on a block or group of cells. Range referencing is useful when you want to find the mean, maximum or minimum or even add a row of cells. There is a group of commands which allow you to perform these actions without the need for lengthy formulae.

You are not restricted to simple arithmetic operations in your formulae. Trigonometric (such as `TAN(x)`), logarithmic (`LOG10(x)`) and logical (`x AND y`) are just a few of the things possible. The maximum length of a formula is 159 characters – this is easily enough to enter highly complex and powerful operations.

It is possible to erase, edit and sort data at any time within the spreadsheet. Sorting is one of the handiest, allowing you to line up data ascending or descending or alphabetic.

That is the spreadsheet part of *Matrix*, powerful and sophisticated enough for most people. However, *Matrix* still holds other surprises – for example, the **Calculator** mode which allows you quickly to work out a problem without having to scramble round looking for a calculator that, when found, has flat batteries.

With the **Notebook** you can write and print a document, and incorporate data from the spreadsheet without retyping it. It is even possible to send control codes such as underline and bold to the printer. The Notebook is almost a complete word-processor.

There is a filing menu that, apart from saving and loading your data, will catalogue disks and erase files.

Large amounts of data to be transferred between different sections of *Matrix*, for example between the spreadsheet and Notebook, must pass through an intermediate zone – the **Paperweight**. Cut, Paste and Copy are available using Paperweight. Cutting involves moving a block of cells from the spreadsheet to the Paperweight, leaving empty cells behind. Copying is similar to Cutting, but the cells remain intact. Copying data is useful only if you are to Paste it elsewhere, be it in the spreadsheet or the Notebook.

Finally there is what makes *Matrix* a very exciting proposition: the **Graphs Menu**. The graphic capabilities of *Matrix* let you represent any area of the spreadsheet as a graph. Up to four graphic zones can be defined at a time. A whole section is devoted to your defining the format and presenting your graphs. First you must choose the type of graph: Bars (vertical bars), Cumul (vertical bars shown cumulatively), Lines (for line graphs) and Sectors (for pie charts). Then you can give your graphs a *key* to identify the different bars or lines. Furthermore ASL has given you the opportunity to edit the final graphics screen: you can insert text anywhere on the screen. The printouts are impressive, to say the least, and very handy if you need a graphical illustration to complement your sales figures.

The only major stumblingblock with *Matrix* is not really its fault at all, but rather the CPC's relatively small memory. This means that *Matrix* is suitable for use at home or in a small business. Bar that, *Matrix* is stunning in that it offers a wide range of options and operations easily performed on your data. With a simple-to-follow manual and plenty of functions, *Matrix* is a winner.

GOOD NEWS

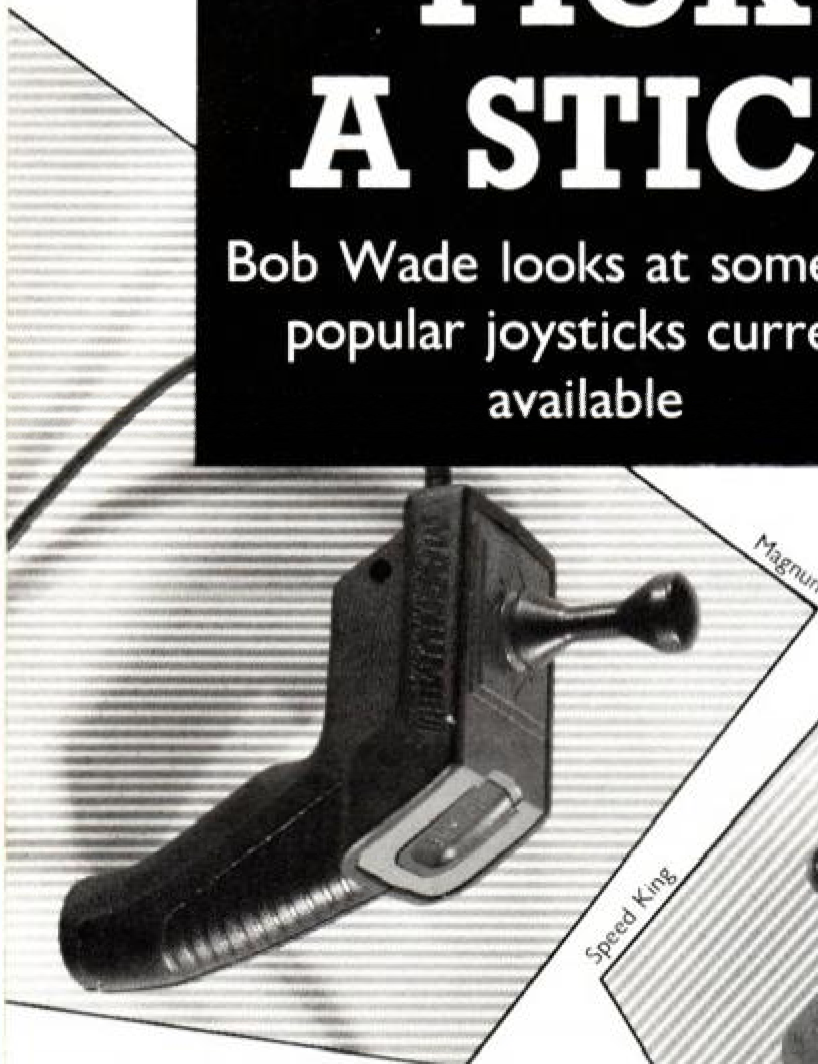
- **Handy built-in calculator.**
- **Notebook is sophisticated enough to be of use.**
- **Excellent range of mathematical formulae possible.**
- **Simple to insert, retrieve and edit data.**
- **Graphical option is exceptional.**

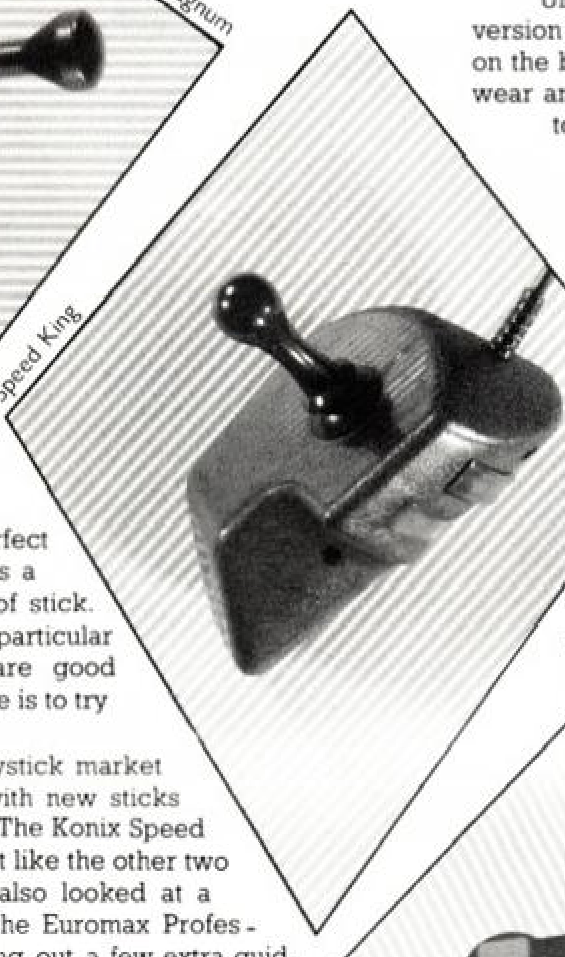
BAD NEWS

- **Slow to move cursor across cells.**
- **Limited data size because of CPC's small memory.**

PICK A STICK

Bob Wade looks at some of the popular joysticks currently available





There is no such thing as the perfect joystick because each player has a preference for particular types of stick. Some joysticks are suitable for particular types of game while others are good all-rounders. The best general rule is to try them out before you buy.

The cheaper end of the joystick market is quite lively at the moment with new sticks from Mastertronic and Britannia. The Konix Speed King has been around a while, but like the other two is cheap and hand-held. We've also looked at a slighter more expensive stick, the Euromax Professional, to see if it's worth shelling out a few extra quid.

Phasor One

Britannia, ☎ (0222) 48 1135, £12.95

Like all the other joysticks in this survey the Phasor One uses microswitches for its contacts. They are quite light to the touch and closely positioned together so that diagonals are very easy to get, sometimes too easy. I found the pistol-grip handle a little small so that my fingers were quite cramped and accidentally hit the Fire button in tight situations. However, I do have quite large hands so this probably won't be a problem for everyone.

I also found the angular top of the stick rather awkward, but not unduly so. You can use left- or right-handed control, so much so that I, a right-handed person, found it easily possible to play with either hand on the grip or Fire button.

Construction seems quite durable and the short steel shaft should prevent breaking or bending. The microswitches should also stand up to a fair bit of beating. I'd recommend this for most games, except ones where you've got to move extremely accurately: the clicking action isn't positive enough and it's too easy to slip into a diagonal. That said, it's RpM's favourite at the moment, so even my minor niggles may not be a problem to you.

Magnum

Mastertronic, ☎ 01-377 6880, £12.50

Like the Phasor One this is a pistol-grip stick, but it's slightly larger. I found this fitted the hand better and also let me play using either hand.

The microswitches gave a very positive clicking action. The Fire button was nice and light. But the switches on the stick itself were just a little stiff. This doesn't affect play much, except when you're going for a diagonal – a little tough to hit. This means a lot of hard work in a game where you have to switch from horizontal or vertical movement to a diagonal fairly quickly.

Construction again seems very solid with a steel-shafted stick and robust microswitches. Like the Phasor One it's excellent value and should see you through many a battle.

Speed King

Konix, ☎ (049525) 5913, £12.99

First reviewed back in issue 7, this is still a very competitive stick in both price and action. Its microswitch construction gives it a feel midway between the Phasor One and the Magnum, so that it gives a positive clicking action but it's still fairly easy to hit diagonals.

Unlike the other sticks it sits in the palm of the left hand (a version for left-handed people never appeared) with a Fire button on the base. Its construction is solid and should stand up to a lot of wear and tear. I still find it the most comfortable of the four sticks to use. In the office it's a good workhorse.

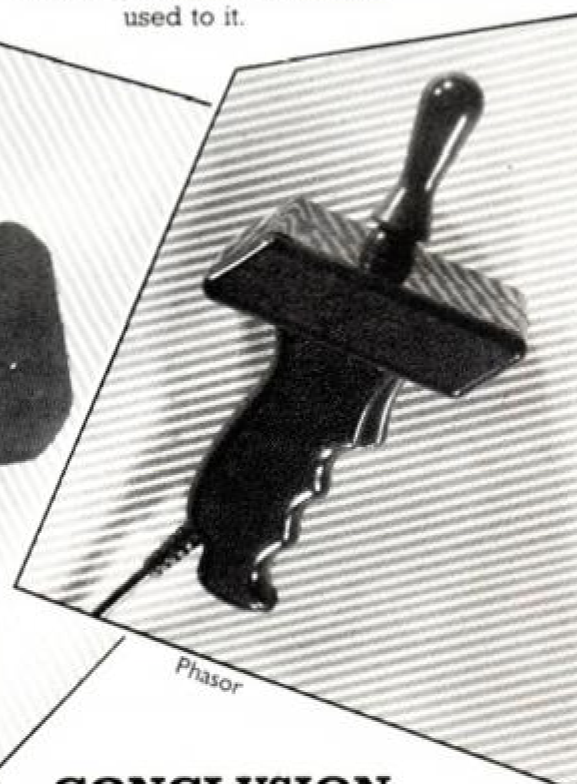
Euromax Professional

Euromax, ☎ (0262) 60 1006, £19.95

This stick costs several pounds more than the others and doesn't have the same hand-held design, although you can still use it that way. It may not be as comfortable to use but it very much depends on your handgrip.

It's very well built and should take a lot of pounding. The microswitch contacts are very responsive and give a positive clicking action that is lighter than the Speed King. There are twin Fire buttons on the base, so left- or right-handers can use the stick. The diagonals are like the Phasor One: very easy to find. I'm not sure it's worth the extra £7 over the others, but it's the sort of stick that a player may never want to give up once he's got used to it.





CONCLUSION

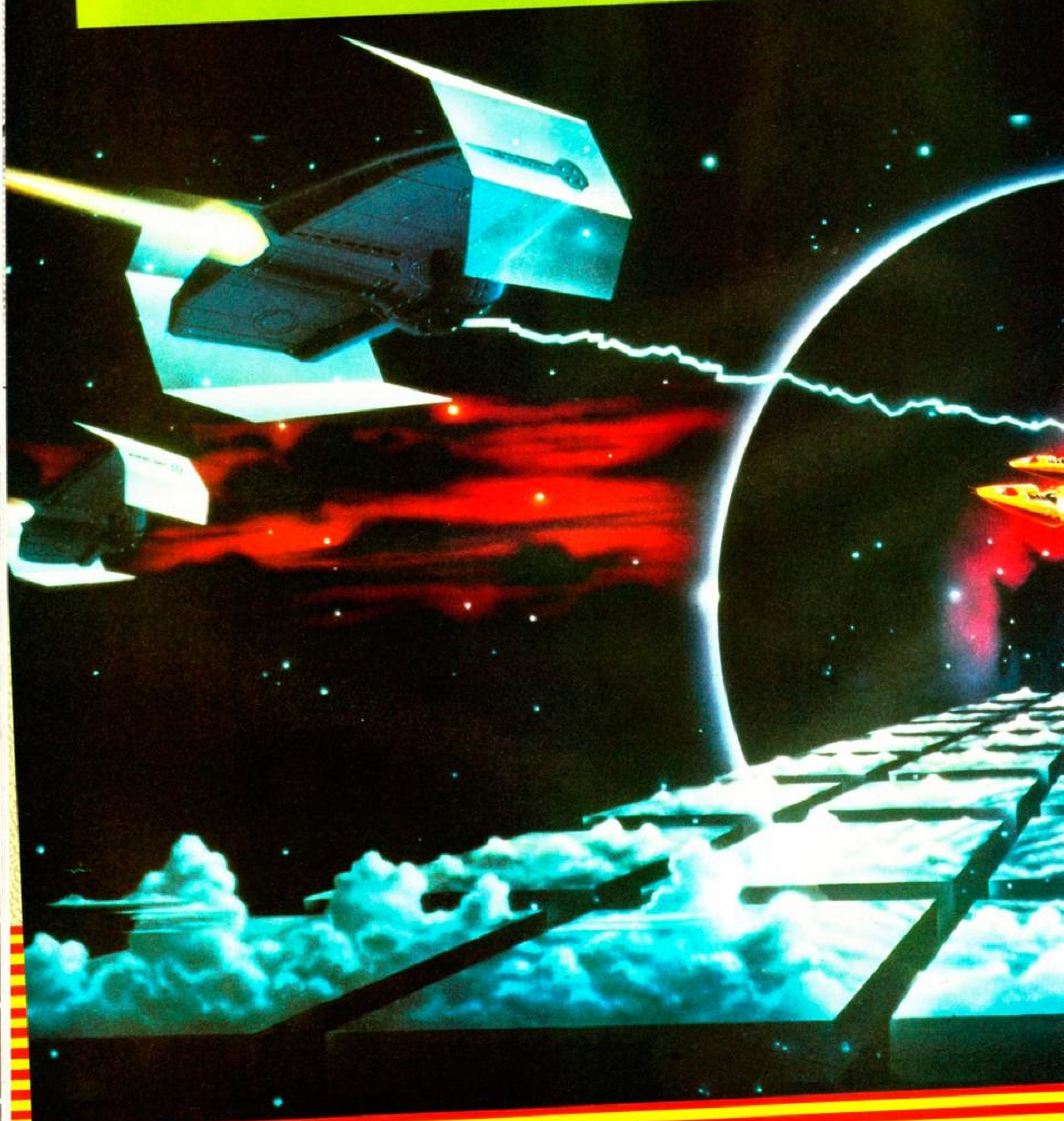
There's not much between the three hand-held sticks in terms of value for money – all are excellent. The Professional will be worth the extra money for some but certainly isn't going to improve your playing that much. If I had to choose I'd still go for a Speed King, but I think I'd still find myself reaching for the other two for some games.

AA


GRANGE HILL – THE GAME
Victory House,
Leicester Place,
London, WC2H 7NB.
Telephone 01-439 0666
Argus Press Software Group
Available for Spectrum,
Commodore 64
and Amstrad: £9.95
Grange Hill © Phil Redmond Enterprises Ltd.

Star Raid

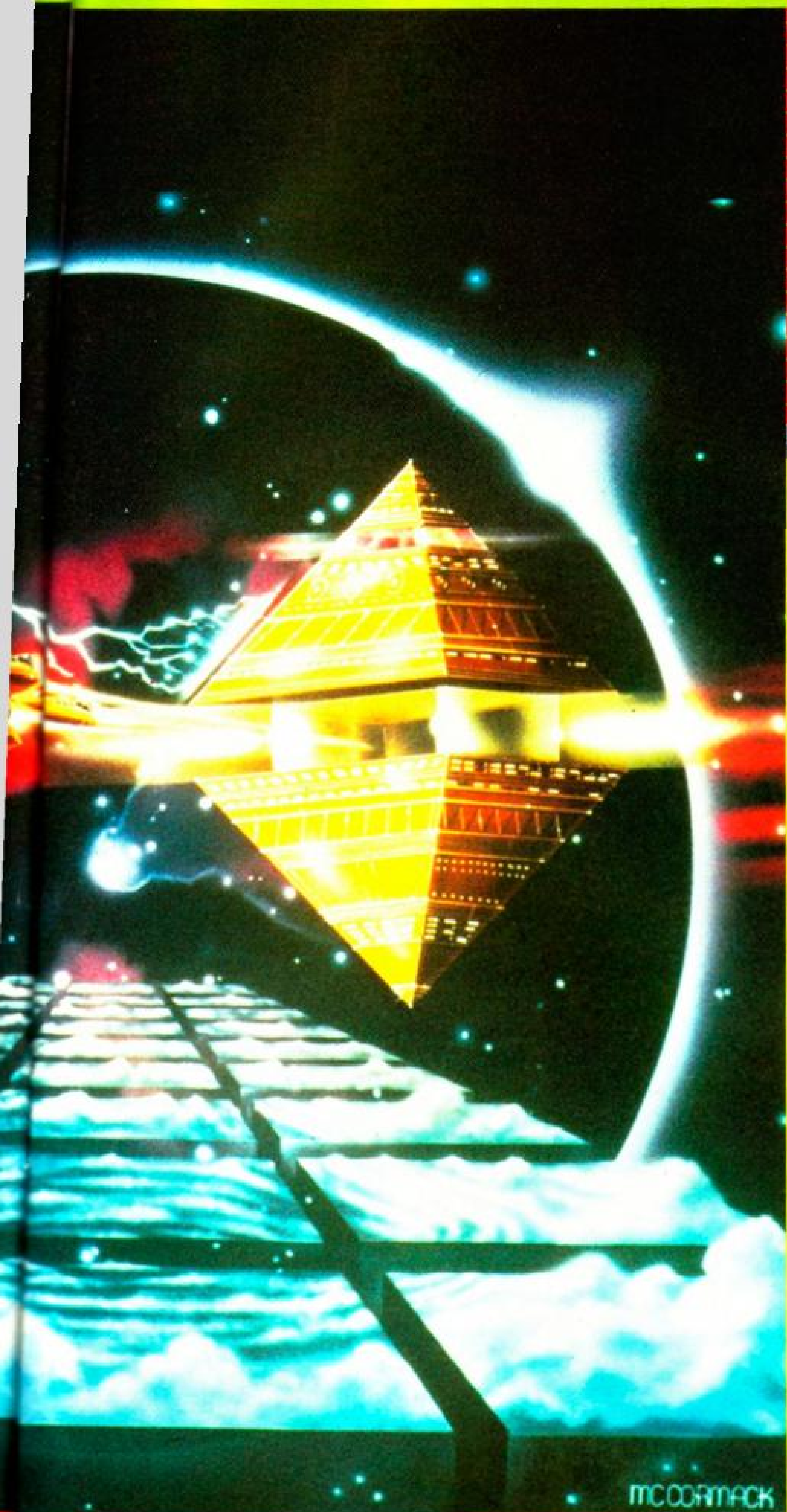
The Great Galactic Adver



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ACTION TEST

New-look Action Test

Action Test has a slightly different look to it this month. But don't worry – we haven't done anything too drastic. The major change is to the ratings boxes, which retain the same five categories and percentage marks but now incorporate the Good News and Bad news. They now also have the grand title of The Verdict.

The Good News and Bad News points relating to a particular rating now appear beneath that rating. So you'll find comments about scrolling, animation, colour etc under graphics, comments about number of screens, difficulty etc under staying power, and so on. Each point is marked with a box – white for Good News and black for Bad. We say goodbye to the bar-graph indicators for ratings (cheering from the art department).

The other noticeable change is in the AA Rave and Mastergame logos, which have undergone another, and we hope final, modification. Speaking of Mastergames and Raves, it has been a poor month for software. It appears the software houses are all resting on their Christmas laurels and getting their breath back in time for a spring spree.

However Hewson has followed up *Firelord* with another superb title, *Impossaball*, which bounces its way to a Mastergame award. *Acrojet* is a superb stunt-flight simulator that will have you doing Cuban Eights, Ribbon Cuts and Flame-out Landings. Three budget games also make the grade (there's never a lull in their production): *Super Robin Hood* is an excellent platform/exploration game, *Rebelstar* is a superb strategy game and *Hyperbowl* is a testing two-player arcade game.

Things will pick up again by next month, so prepare for spring fever.



ACROJET

US Gold/Micro Prose, £9.99 cass, £14.99 00 disk, keys or joystick with keys

This is a flight simulator with a difference. Whereas most simulate flying a large cumbersome passenger or fighter plane, this simulation puts you in a sophisticated jet stunt-plane.

And instead of viewing the horizon from the cockpit, *Acrojet* shows your plane and the immediate surrounding area, as if seen from a second aircraft following you.

Your cockpit dials – displayed on the bottom third of the screen – show altitude, airspeed, degree of flaps, fuel, compass, landing gear and brakes. Also on screen is the Event Course Display, which shows your position on the airfield, the path of flight and the objects placed around the airfield for certain stunts.

Pylons are just poles sticking out of the ground, and ribbons are two poles joined by a ribbon – makes sense, doesn't it!

Stunts range from easy like the Pylon Race, where you fly around all four pylons before flying back across the landing strip, to very difficult like the Cuban Eight, where you must fly under ribbons, do half-loops and half-rolls. Believe me, it's difficult.

There are 10 different stunts, which you can do one at a time, or as a pentathlon or decathlon. Amazingly, the game is not limited by these 10 events; you can design and judge your own.

You first name the event and enter what you determine to be the difficulty factor. You can also choose which of the nine available courses you wish to use. Then you attempt to fly the event, and judge yourself on how well you feel you did it. If you decide the event should be timed, the computer will deal with the timing and judge you accordingly.

There are nine throttle settings and a throttle-off switch. I've flown the Pylon Race at full throttle, but was battling to keep the plane at the same height. And reader Michael Anders (Reaction last month) will be glad to hear the joystick behaves like a real plane: you pull back on it to climb.

There are other gauges, which you shouldn't need to read, such as the EGT, or Exhaust Gas Temperature. The EGT indicates in degrees Celcius, the temperature of the jet exhaust. This becomes critical over 700 and will damage the engine.

Weather conditions can also be displayed in the cockpit: forward visibility and the height above you of the nearest cloud form.

The single-sheet manual that comes with the game is comprehensive and yet simple to follow. It describes the 10 events and explains all the cockpit dials, and also gives hints on safe flying and easy methods for certain manoeuvres.

On different machines, I have played about seven flight simulators, and this is the best I've seen yet. Movements are fast and the plane responds well to your actions. It really is an exhilarating feeling to stall the engine at 1000 feet (tried to *pause* it!) and feel the drops of sweat ooze from your forehead as you battle to pull up before a fatal meeting with the plush airfield.

Unfortunately, the crash is rather pathetic and lacks any sort of realism. Still, a small criticism of an otherwise excellent game. I've played this game for hours and hours and still find it tremendously addictive.

If you're going to buy a flight simulator, buy this one. Although you never get to see the world, you do get to see exactly what you're made of, man or mouse. **CB**

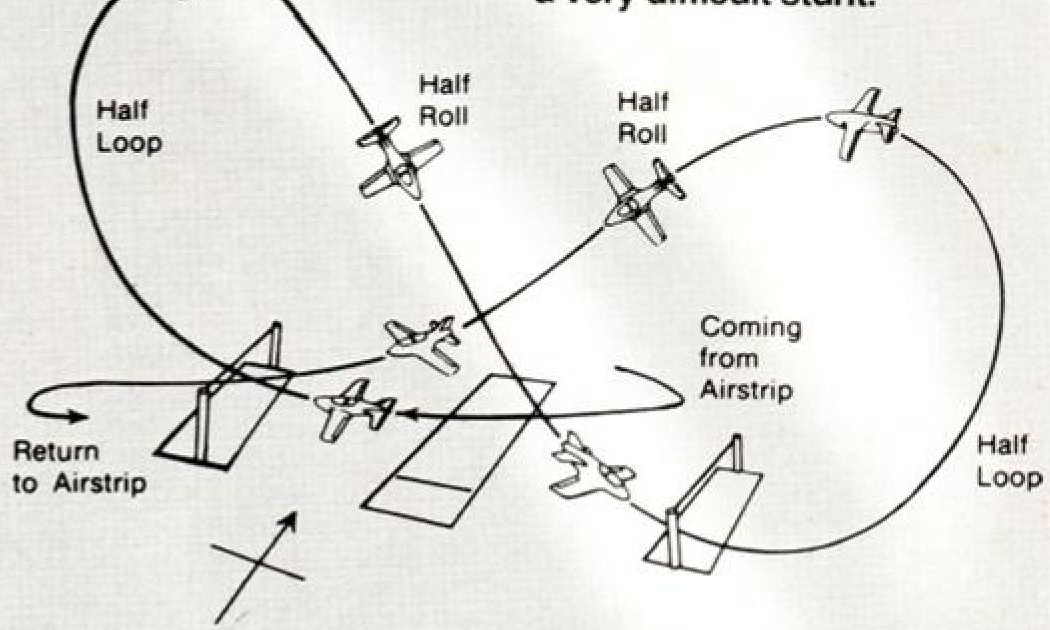
SECOND OPINION

I don't usually like flight simulators because you spend hours getting to know the controls and then all you can do is fly around in the wild blue yonder. However this one does have plenty going for it – a good view from behind the plane, easy controls, variety in the stunts, and a constant challenge. Nothing to shoot at but plenty to do. **BW**

GREEN SCREEN VIEW

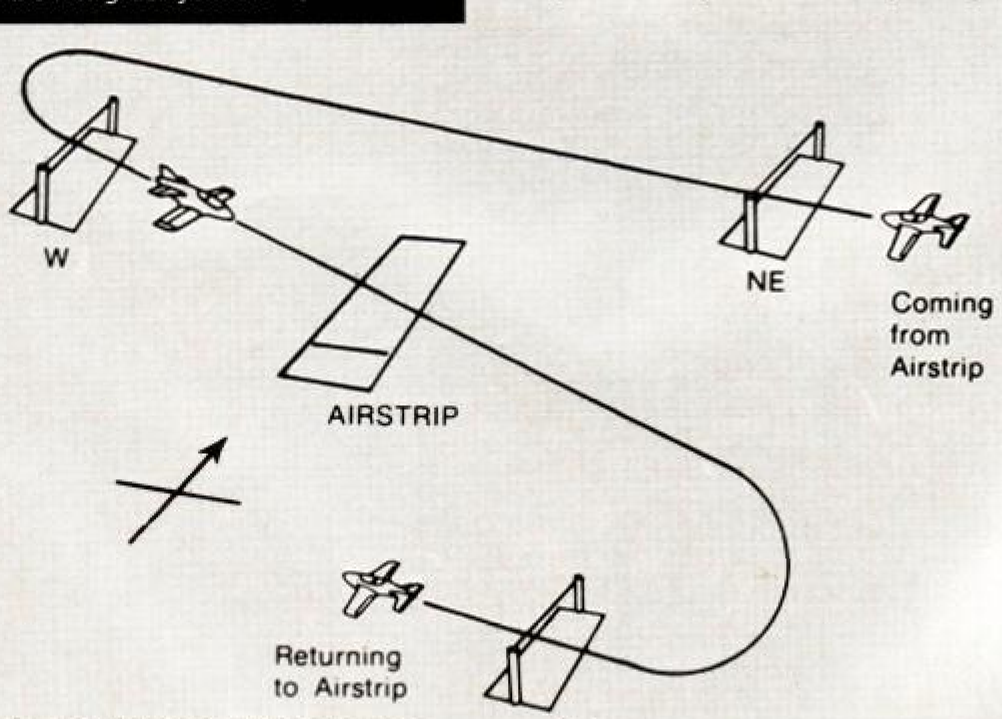
Visibility unlimited: all clear for takeoff into the wild green yonder.

This is how to do a Cuban Eight, a very difficult stunt.



FIRST-DAY TARGET SCORE

Complete a double ribbon-cut and try a roll.



This is the Under Ribbon race, don't cut them.

The Verdict

GRAPHICS 62%
- □ Realistic and fast scenery drawing.
- ■ Unimpressive crash.

SONICS 20%
- ■ The only sound is engine noise and a crash.

GRAB FACTOR 85%
- □ Very addictive and playable.
- ■ Flight sims aren't easy to get into.

STAYING POWER 93%
- □ Ten preset stunts.
- □ Lots of variety in stunts.

AA RATING 89%
- □ Comprehensive instructions.



The jet skims low over the airstrip and heads for a ribbon which it must fly under.



The jet prepares to slice through a ribbon.

IMPOSSABALL

Hewson, £8.95 cass, £14.95 disk, joystick or keys

Bouncing balls were the revelation in games in 1986 and now we're well into '87 they're still going strong. It bears similarities to other bouncing-ball games in the recent past (*Bounder, Trailblazer, Revolution*) but has astounding gameplay, a very tough challenge and some great new ideas going for it.

The action takes place on eight scrolling levels where you have to squash a set number of cylinders with the ball, avoid the obstacles and get to the finish, all within a time limit. The sideways scrolling is the first thing you'll notice because it's a bit jerky, but you'll find you won't notice this once you get really absorbed into the action.

The ball bounces continuously at a low height, but by holding down the fire button you can bounce it up higher. The floor and ceiling are chequered, the squares playing an important part in calculating jump length. The perspective in the side view is excellent, the ball and all the objects becoming smaller as they recede to the back of the playing area, but not shrinking so much as to be unplayable.

There are only three basic types of danger – but enough to create some wicked problems. There are spikes on top of pillars, plasma fields that look like wobbly ovals, and firebolts that jag out like bolts of lightning. The spikes are always in fixed positions but the plasma fields and firebolts often form tricky movement patterns. Some obstacles combine all three hazards, and the further you go the harder they get.

Getting past the dangers isn't enough either, because you've got to squash the cylinders that are usually dotted about among them. Sometimes they're on the floor and have to be bounced on; otherwise they're on the ceiling and have to be bounced up to.

Controlling the ball is easy but getting past some obstacles takes good timing and quick action. It's surprising how easy this is to pick up. Once you've learnt how to complete an obstacle you'll be able to get past it more and more often. The best part about the control is being able to change direction in the air so that skill 'on the ball' counts as well as timing.

You will also encounter magic rings that flash and when bounced on give you a time bonus. However, bounce on them again and you lose a life. Some problems involve bouncing on a ring in order to get at a cylinder, but you've got to be careful not to hit it again on

SECOND OPINION

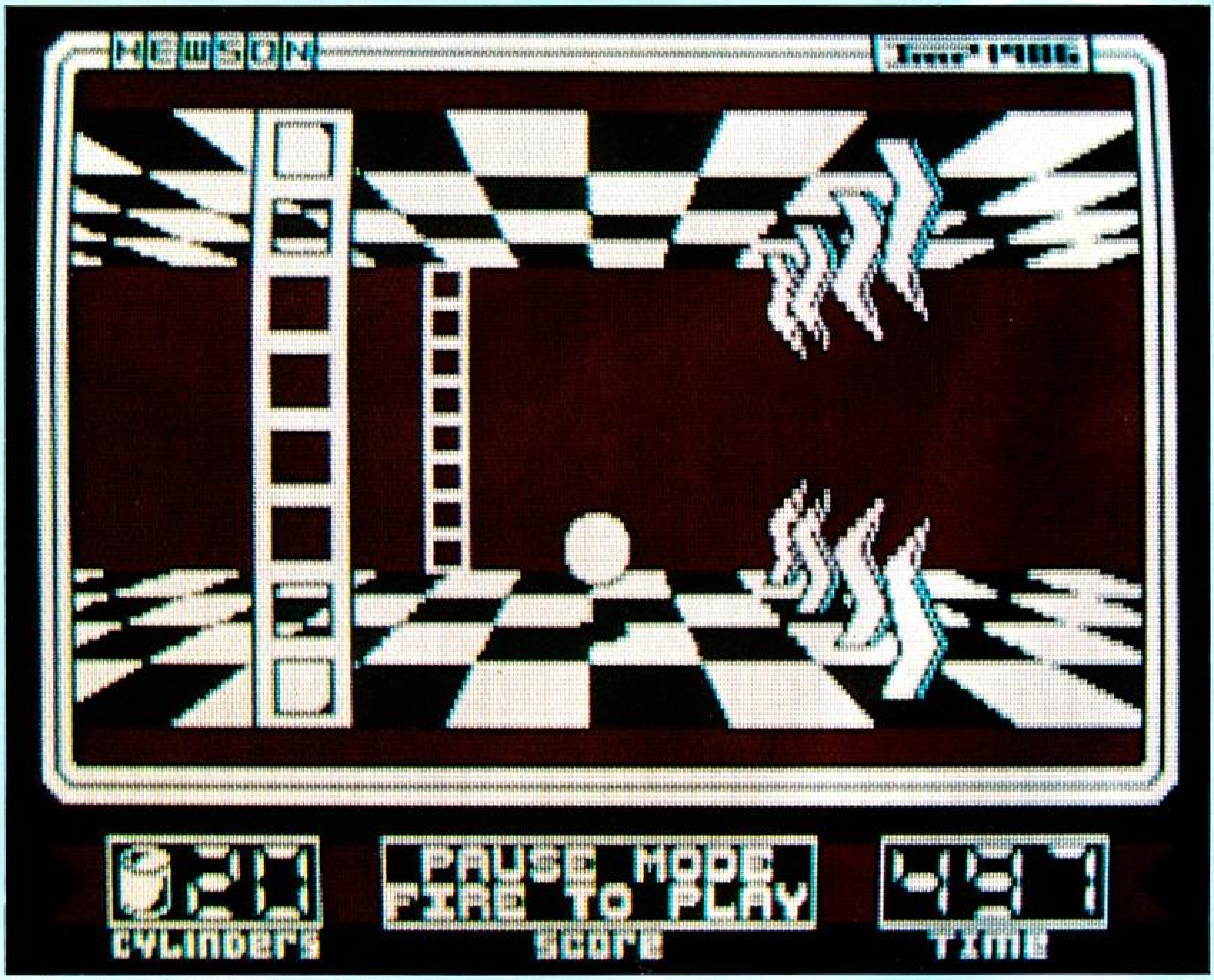
Boing, boing, baddoing... I thought I would be extremely ill on seeing another bouncing-ball game. That was until my eyes fastened themselves on Impossaball *– it's nothing short of brilliant. All action is viewed from the side, with a great 3D perspective: everything is drawn to a vanishing point deep in the screen. Can you afford to miss this game? I think not!*

RpM

GREEN SCREEN VIEW

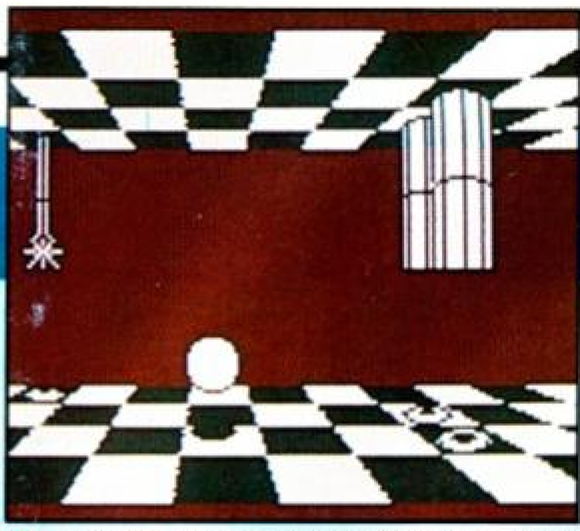
Clear, clear, clear.

BOUNCE YOUR WAY THROUGH LEVEL 2

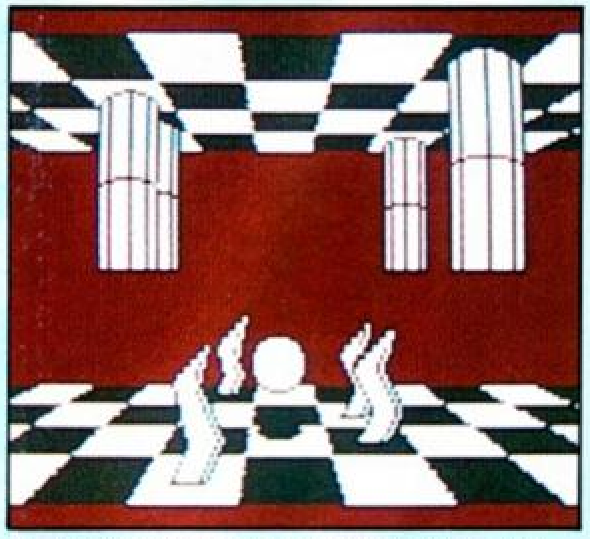


1 At the start you're confronted by a wall of firebolts

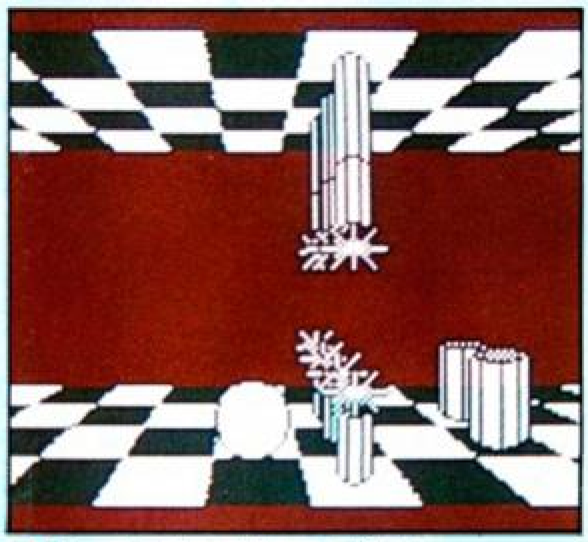
MASTER GAME



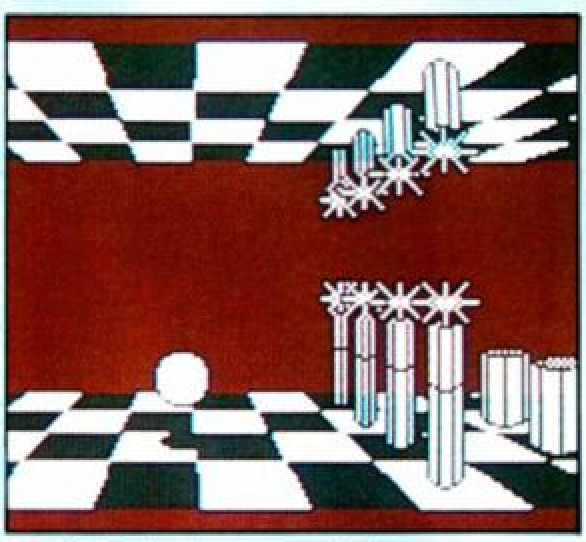
2 After the firebolts are a collection of magic rings and your first four cylinders



3 Some moving firebolts making it tough to get those cylinders



4 Squeezing through here is difficult



5 And it doesn't get any easier here



6 The final hurdle as you try to get the cylinders from among the spikes

the way down.

The time given for each level seems to tick away frighteningly fast. But on the starting levels it's quite generous once you know what you're doing. The levels do get tough, but because it's a matter of solving problems and learning your way through the levels, you'll keep getting that bit better.

Apart from the scrolling the graphics are good, particularly due to the excellent perspective view. The sound-effects are adequate with a title tune as well, but they're nothing special. This is one of those games that gets classed as frustrating but very addictive. Every life you lose will frustrate you but you'll always come back for another go because you know you can crack the problem. **BW**

FIRST-DAY TARGET SCORE
5,000

The Verdict

GRAPHICS 68%
- ☐ Great perspective view.
- ■ Jerky scrolling.

SONICS 53%
- ■ Unimpressive title tune and effects.

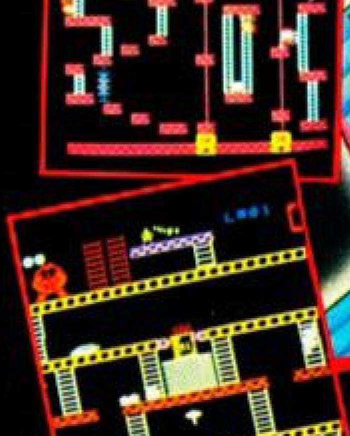
GRAB FACTOR 94%
- ☐ Very easy and responsive controls.
- ☐ Problems hook you immediately.

STAYING POWER 90%
- ☐ Eight very tough levels.
- ■ Slightly lacks variety.

AA RATING 91%
- ☐ Excellent new variation on the bouncing-ball theme.



DONKEY KONG™
from Nintendo™
STARRING
SNORT!
Donkey Kong
HELP!
The Beautiful Girl
FIGHT!
The Brave Carpenter
Cabanga



MARBLE MADNESS CONSTRUCTION SET

Melbourne House, £9.95 cass, joystick or keys

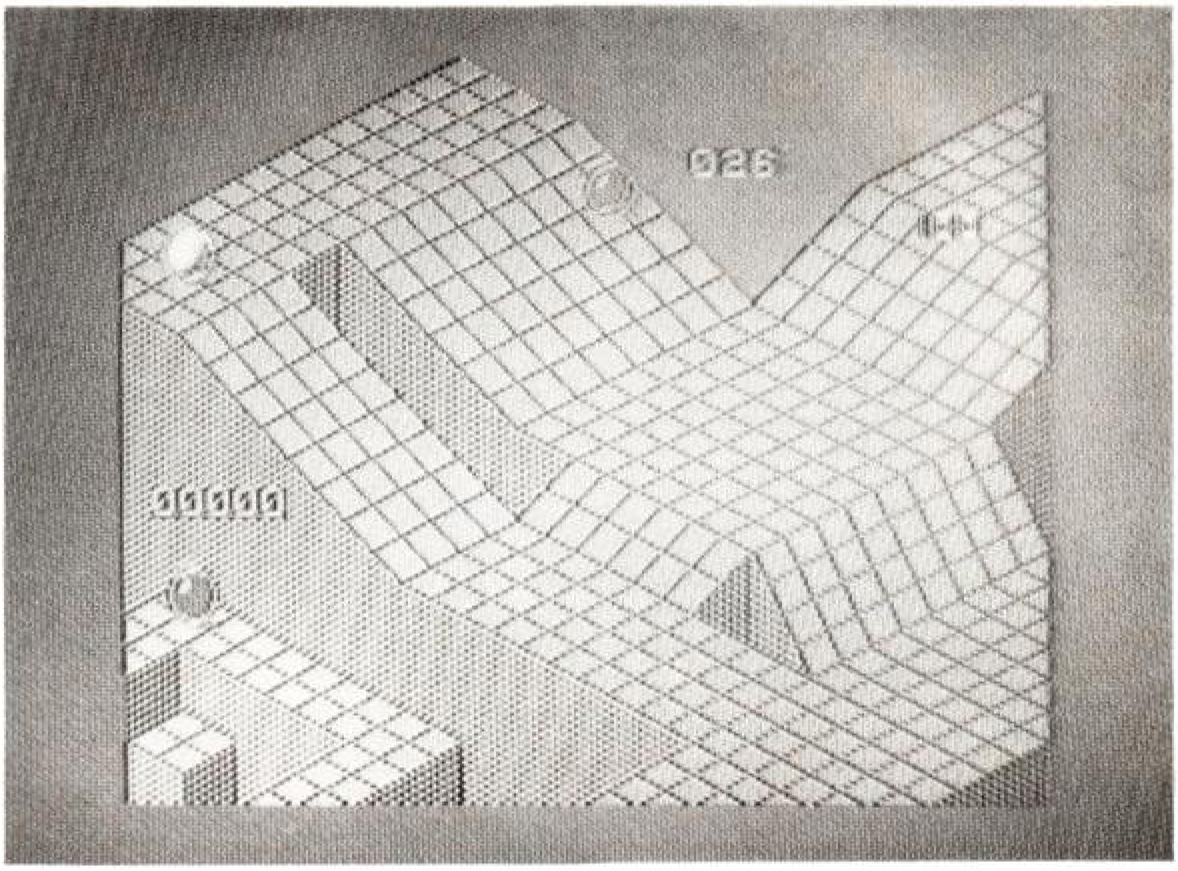
Marble Madness clones have been around for a long while now. Ironically Melbourne House came out with the first one, *Gyroscope*. Now it's got the official licence, but obviously needed something to make it a bit more special. So what do we have? A construction set.

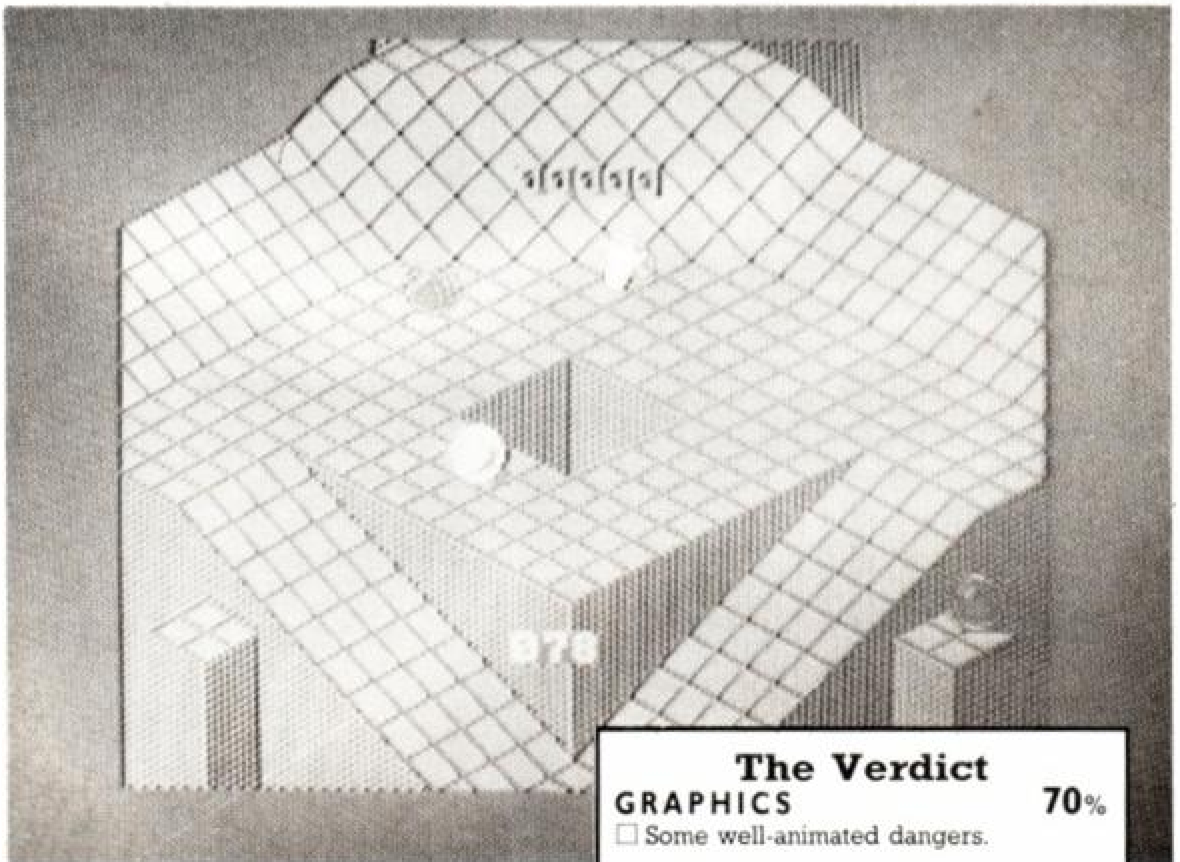
You control a marble which has to be guided down a course made up of grid blocks, which form flat surfaces and slopes. All about you are sheer drops and other hazards that can easily bring the marble's life to a shatteringly short conclusion. The initial setup has 12 screens to get through but obviously you can modify them or create completely new ones.

The control of the marble I found awkward and unresponsive, requiring you to work quite hard at the joystick rather than lightly guiding it around. I was also a bit disappointed with the detection system for collisions or drops, which sometimes seemed most unfair. I think the game also suffers from initial comparisons with those that have gone before, like *Spindizzy* and *Bobby Bearing*.

On its route down the course the marble can run into several surprises. Some are nice like bonus scores, but others spell disaster. The range range of dangers has different effects on the marble: bounce it off course, catapult it to its doom, freeze it, shatter it or even swallow it. You don't have a limited number of lives, but each screen has to be finished within a time limit or the game is over.

The hazards are small but nicely animated – ranging from flapping birds, spinning hoops to what look like large woolly socks. One slip and you'll have to start all over again. If you do complete a screen, there might be a bonus score.





SECOND OPINION

Apart from rather dull use of colour, the occasional beep and rather dated gameplay, Marble Madness *has much going for it. The tasks are daunting and will have you sweating. The various alien lifeforms are beautifully animated but deadly. But most important is the screen editor: it's first-class. Well, at least I managed to complete a few more screens after a quick bit of revision on them.* **RpM**

GREEN SCREEN VIEW

There's a colour-define option in the editor.

You'll probably find the initial 12 screens quite difficult, but you can construct your own easy ones or really fiendish layouts. The screen designer is very easy to use, working on a grid basis, and allows you to position all the features within the game.

You have a variety of basic building blocks to form the route, and then the hazards can be placed wherever you want them. Trial-and-error is needed to find which ones play the best. A lot of variety is possible if you use your imagination. You can also change the various inks and produce successive screens in completely different colours.

Once you've designed a set of screens you can save them to use later and build up a selection of different layouts. You aren't limited to 12 screens, but you are constrained by the amount of free memory, a constant readout of which is given by the screen editor.

The game is okay but obviously suffers from its age. The graphics also are adequate but nothing very special. What the game really stands or falls on is whether the screen designer gives it enough potential variety. I think people will find it intriguing to play around with, and after some thought can come up with many interesting layouts. Don't buy it just for the game – the designer will need to be put to use to get the best out of it. **BW**

FIRST-DAY TARGET SCORE
2,000 (original layout)

The Verdict

GRAPHICS 70%
□ Some well-animated dangers.

SONICS 10%
■ Virtually none at all.

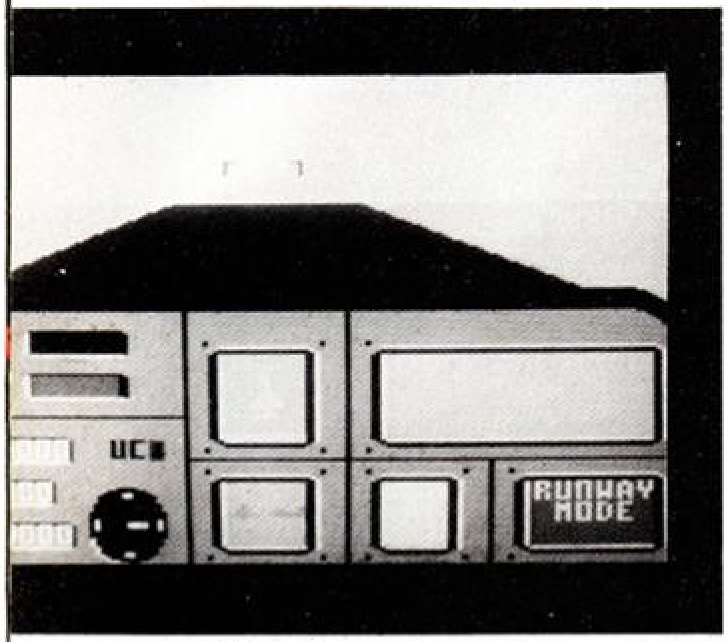
GRAB FACTOR 65%
□ Very easy-to-use screen designer.
■ The marble is unresponsive.

STAYING POWER 74%
□ The screen designer gives plenty of possibilities for variety.

AA RATING 70%
□ The only construction set of its kind.
■ Basic game isn't as good as competitors.

ACE

Cascade, £9.95 cass, £14.95 disk, joystick or keys



ACE is a flight simulator which puts you in an *AWAT* – All-Weather All-Terrain – combat aircraft.

At this stage of the conflict, you have three Allied airbases remaining. You must fly sorties to seek and destroy the enemy landing forces. This you can do only after you have shot down the enemy airforce. Finally, you must sink the enemy fleet before they evacuate all their defeated troops.

Options let you select a skill level from 1 to 9, fly single-pilot or with a weapons man, choose the season in which you are flying, or to *fly at night*.

SECOND OPINION

This isn't a patch on many flight simulators that have been out for some while. The flying is simple but boring, and the combat sequences aren't very exciting. Tomahawk and Strike Force Harrier easily blow this out of the sky. **BW**

GREEN SCREEN VIEW

The Winter option suits green screens.

After choosing, you must then select the range of weapons you wish your diligent groundcrew to arm your ACE Mark 2,1 Multi-role AWAT with.

Now you can take off. As usual, you accelerate, pull the aircraft gently up and raise the undercarriage. In flight, you can perform any stunts you wish, but I should try to shoot the enemy first – that's hard enough as it is!

This game would have been exceptionally boring but for the palmtrees and molehills which loom convincingly before you. Sound is average, and reminds me of a tired Lambretta.

CB

The Verdict

GRAPHICS 48%
- ■ Very little action on screen.
- ■ Slow screen update.

SONICS 24%
- ■ Very poor sound. Brmm Brmm!

GRAB FACTOR 58%
- ■ Until you find a plane, action is very boring.

STAYING POWER 48%
- □ Very nice refuelling in mid-air.
- ■ Frustration won with me – I gave up eventually!

AA RATING 54%
- □ Quite a challenge if you can stick it out.

XEVIOUS

US Gold, £9.99 cass, £14.99 disk, joystick or keys

Xevious is set in the future, where you control a Solvalu spacecraft. You must shoot the Xevians who are attempting to reclaim the heritage they evacuated before the ice age. I say let them have it. I'm a non-racialist!

The Xevious force takes the form of frisby thingies which bomb you – even though you are at ground level – and more conventionally styled planes. While dodging and shooting the oncoming enemy attacks, you must bomb the Xevious ground entrenchments or dodge their accurate bombs.

SECOND OPINION

This isn't a bad little shoot-em-up and had me glued to the joystick at first. The trouble is there's not enough to keep you playing for long. As for the mothership, I must have blinked and missed it. **BW**

GREEN SCREEN VIEW

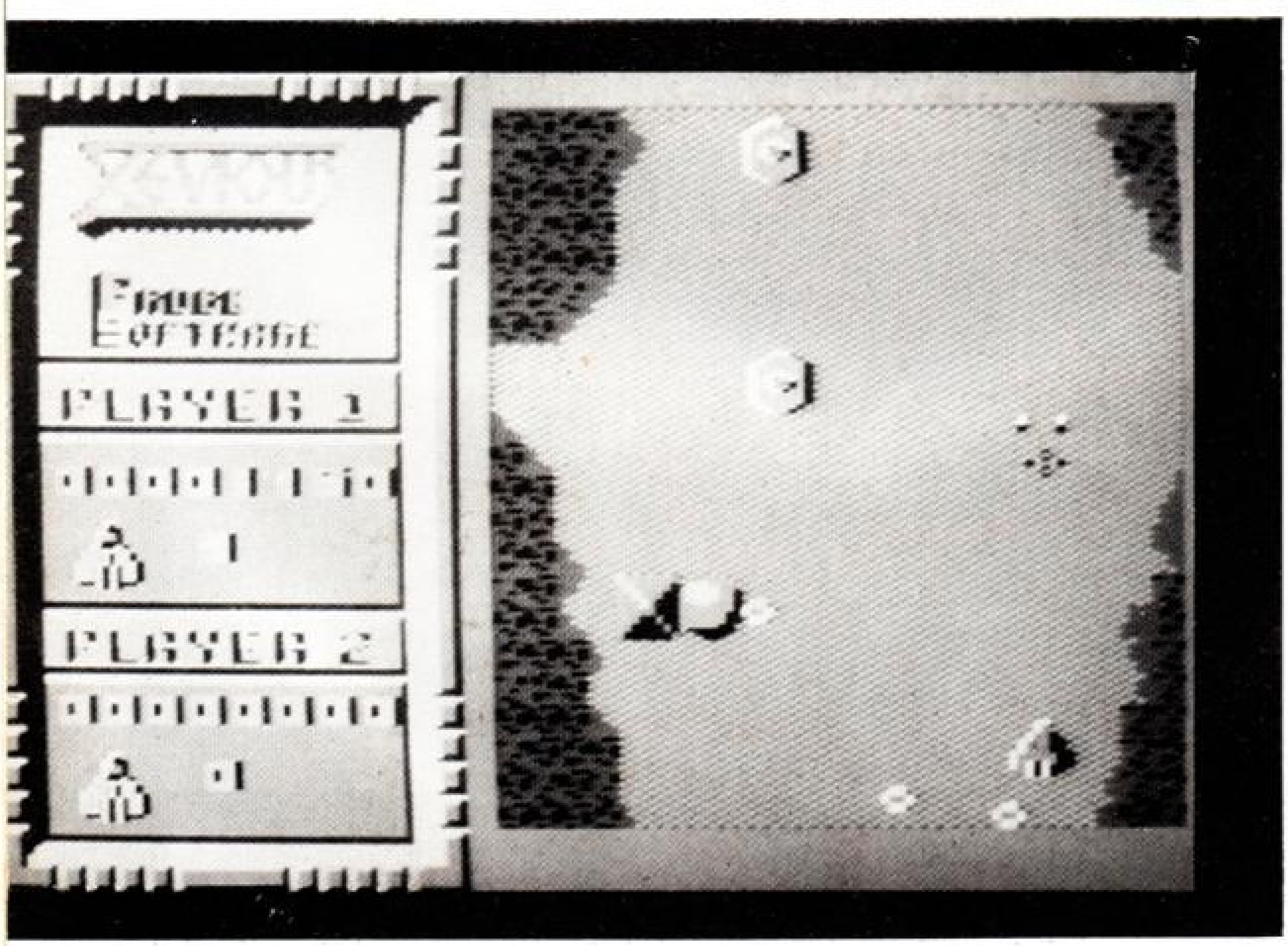
No problems.

As you start to get closer to your final goal, you encounter tanks which shoot at you and are harder to bomb. Eventually, the Xevians will send in their final defence, flying mirrors. They cannot be shot, and will pulverise you if you do not dodge them.

Once past them, you find the Andor Genesis mothership. One direct hit to the central reactor will blow her to smithereens. Well, it's not really smithereens; you just see a hole appear in the middle.

This game started off with lots of appeal and promise. Unfortunately, nothing materialises. The downward scrolling of the screen is good, but the action is slow.

CB



The Verdict

GRAPHICS 76%
- □ Very good scrolling.
- □ Intricate ship design.

SONICS 43%
- ■ Sound is average with no stunning explosions.

GRAB FACTOR 71%
- □ Initially the desire to complete the game is compelling.

STAYING POWER 52%
- ■ Too easy – I didn't realise I had shot the mothership because nothing spectacular happened!
- ■ Insufficient realisation of the initial promise.

AA RATING 57%
- ■ Not as good as *Lightforce*.



CONVERSION TO AMSTRAD BY DR. DAVID AUBREY-JONES

CASSETTE £9.95



BOMBJACK II

Elite, £8.95 cass, £14.95 disk

No, it's not another arcade conversion because this game takes the arcade original and improves on it with a completely new game. The star is still Jack and he's still got plenty of bounce in his legs but he's after gold bags instead of bombs and life has got a lot tougher.

The version we saw still had refinements to be made to the graphics and backgrounds. But the gameplay was finished and mighty impressive too. Jack has to collect 10 bags of gold from each of the game's 40 screens, avoid monsters on the way and try to pick up large bonus scores.

Each screen is composed of a number of platforms. If they are aligned horizontally or vertically you can jump between them just by walking off the edge of a platform or pushing up or down on the joystick. Collect one bag and another will start to flash. The more flashing bags you collect, the bigger the bonus score.

Things aren't that simple of course. Monsters patrol many of the platforms, and as time passes they mutate into more dangerous beasts. These can be confronted and killed in a battle of strength but they'll only reappear to haunt you later.

Although the game is simple in concept some of the platform layouts are devilish, making it very difficult to get the bags and stay alive. 40 screens should be more than enough to keep you going. This looks set to be as addictive and easy to play as its predecessor. **BW**





MERCENARY

Novagen, £9.95 cass

Deep among the snowdrifts nothing stirred but a lone, intrepid programmer battling the elements to get from Reading to Somerton. What dragged him out in the awful weather on January 14? Only what looks like being one of the big games of 1987, that's all.

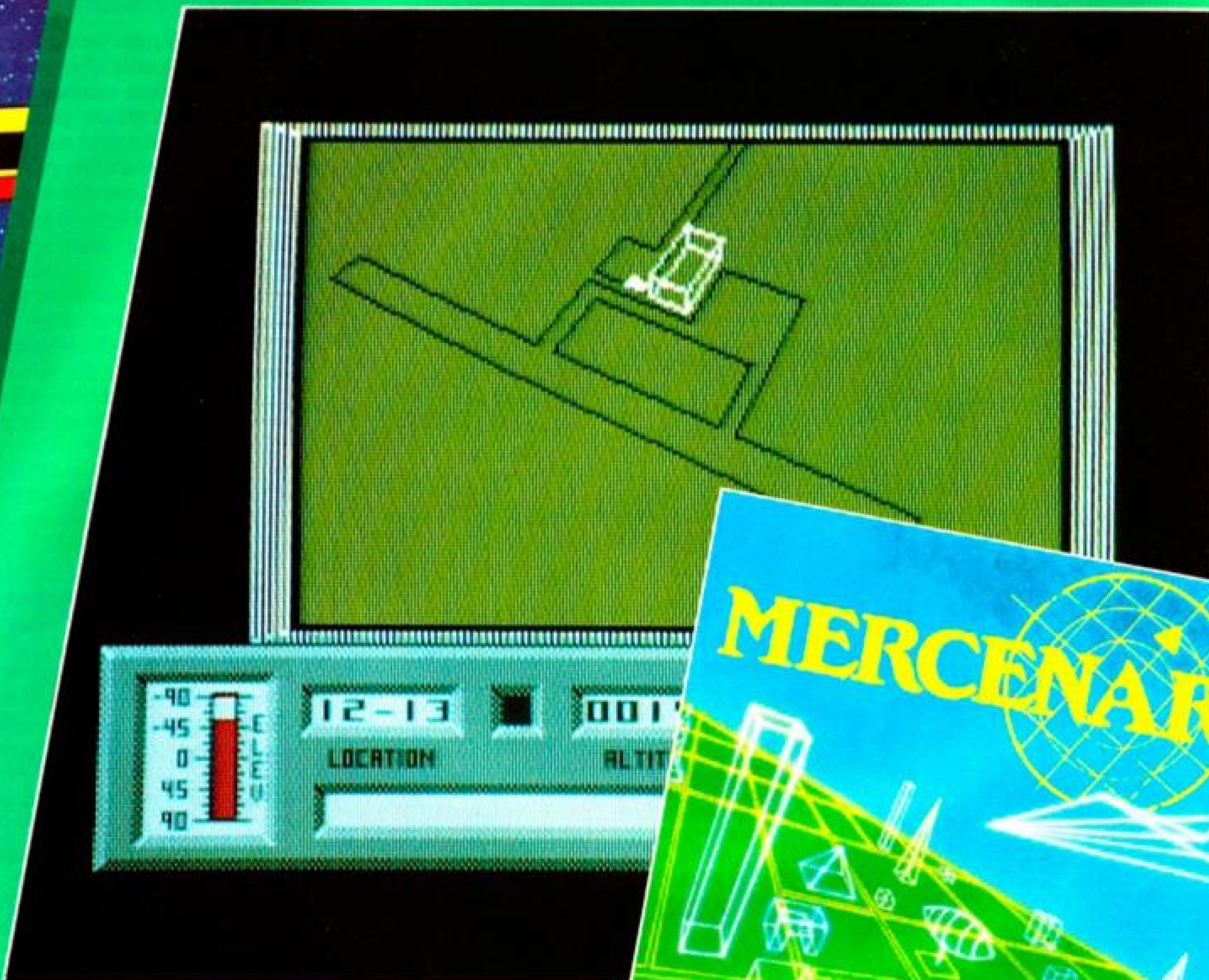
The game, called *Mercenary*, subtitled *Escape from Targ*, is being converted to the Amstrad by Dr David Aubrey-Jones. He's been working on the conversion for well over six months. If you need any proof of his pedigree, he was the man responsible for *Tornado Low Level* and that amazing smooth scrolling.

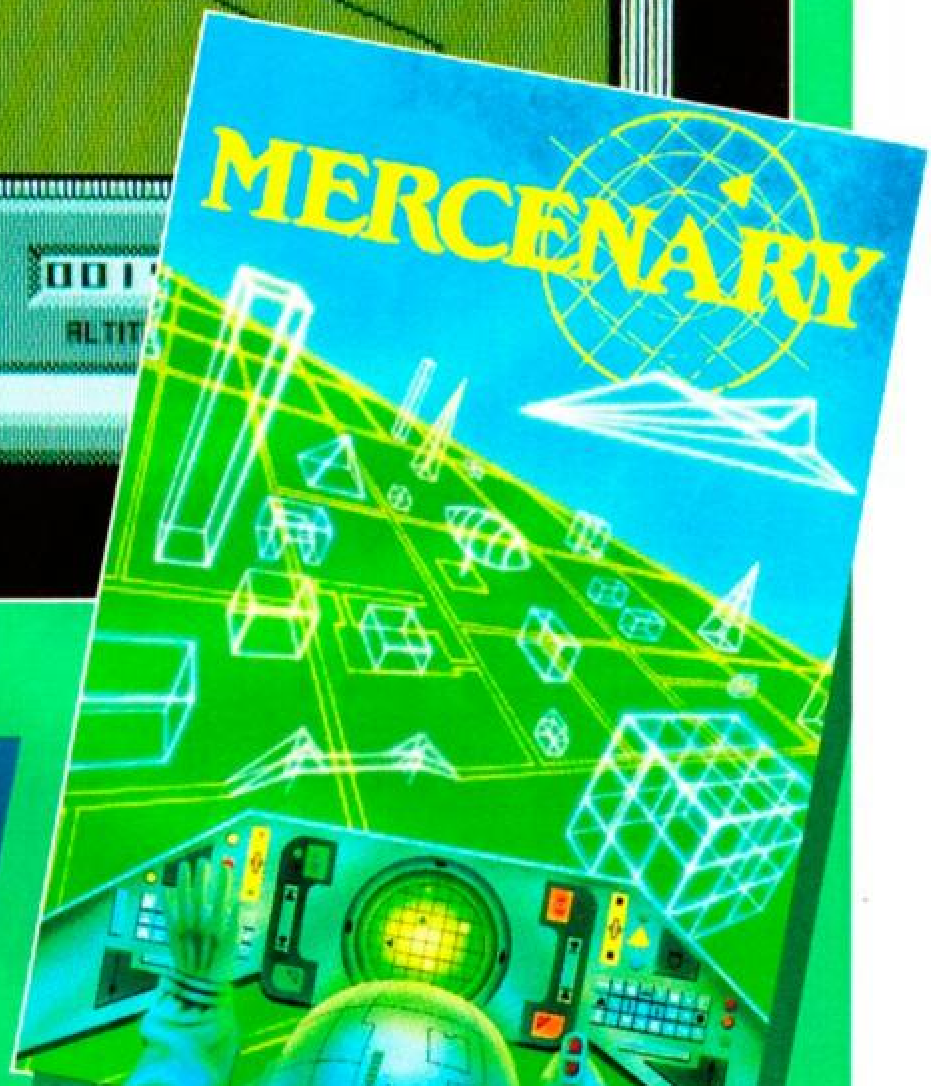
Mercenary is impressive. So impressive that an early version of the program was given a rave 'review' a month ago by another Amstrad magazine despite several crucial elements of gameplay being missing.

The copy of the game the brave doctor mushed through the elements to show us was still incomplete, but he expected to have it finished by early February. So you can hope to see it in the shops in a few weeks.

You play the mercenary who has crash-







landed on the planet Targ. Despite the opportunities to pursue your profession and make money on a war-torn planet, this is just a means to your true end: escaping from the planet. To do that you've got to get hold of a craft that can cope with intergalactic travel – after all your last one's buried its nose in Targ's dirt.

A single city represented by a network of roadways and numerous vector-graphic buildings forms the major part of the game. But outside it are other objects including a space station. You can make your way around on foot, but to really appreciate the game's graphics and sheer scale you need to hop into the first available 21st-century flying machine and explore properly.

The vector graphics are excellent and fast-moving, and although the view is often quite bare, you really do get the feeling of moving round a real world. This is enhanced when you take an elevator below ground and explore the underground complexes where most of the game's puzzling goes on.

On the preview version this was all great fun. But it lacked the star of the show: Benson your computer. Benson, we are promised, will keep you updated on what's happening through scrolling messages on screen, with a cheery beep and a cutting wit. He also controls the planet's defences, so the preview version didn't allow us to try out any fighting with the planet's other ships. They should come after you when you start bunging missiles at their buildings.

The adventure element looks quite tricky. But Benson is crucial to that too, so we'll have to wait and see just how tough it is. There's no doubting the graphics will be superb. And with the hope of a possible disk version containing a second section to the game, it looks like a very promising debut for Novagen on the Amstrad.

BW

AA RAVE

REBELSTAR

Firebird, £1.99 cass, keys only



Strategy games don't usually attract a very big market, so it's surprising to see one on a budget label. I hope this move will give a good game the recognition it deserves and show gameplayers that there's a lot more to games than shoot-em-ups and arcade adventures.

The game is a battle between two forces to gain control of a moonbase. One or two players can take part. In the one-player game you have to attack the base; in the two-player game the players control a force each. The one- and two-player versions are recorded on opposite sides of the tape and take very long to load – enough time to make a cup of tea, a sandwich and have a quick snooze, in fact.

The attacking force has to destroy the main Isaac computer, and is composed of a number of men and women with three combat droids, and the defending force is composed mainly of droids and robots. If you're playing against the computer there are eight skill levels, but even on the first one you'll need a lot of work before you get anywhere against the defenders. On the eighth there are droids everywhere: you'll have to be a tactical genius and a bit lucky to get far.

You view the base from above. Surprisingly for a 'strategy' game, it has excellent graphics, particularly due to the high detail and good use of colour. It's packed with objects, rooms and features, some of which are useful. The rooms make up a mazelike structure – this makes the game much more complicated and enjoyable as you try to fight your way around it.

The raiders first have to be deployed in airlocks that can only be opened by the combat droids, so don't get any of your personnel stuck. The human raiders come in two sorts: three carrying powerful laser weapons and the others a less powerful laser. In the game each side takes a turn to move and shoot its fighters, so you need to make sure they aren't vulnerable when your turn ends.

Each individual has a number of action points that are used up by movement and firing – careful calculations are needed for getting behind cover or getting a shot away. If you can't get in range of an enemy but it looks as if he will come into view during his turn, then you can set 'opportunity fire', so that you automatically shoot during the other player's turn when something crosses the line of fire.

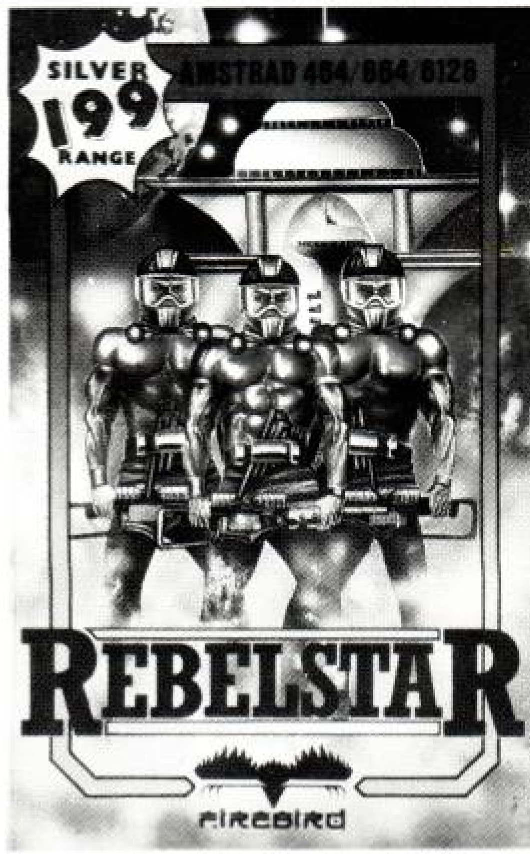
The fighters have a detailed rundown on their status, in terms of both health and weaponry. There are also objects they can carry – apart from weapons – like keys, medi-probes and coffee tokens to fit dispensers. Getting, dropping and using objects also uses up action points but adds another aspect to the game.

When you get down to the nitty-gritty of fighting there are some excellent laserbolt effects and explosions. Shots vary in their accuracy, but hits on a target will wound it and rapidly kill it, particularly at close range. Some units under fire will panic and may not fight, but that situation may change in a following turn.

You can explore the base during your turn by using a cursor. Place it over objects and it will show what they are. If this exploration doesn't give you enough of an overall view you can call up a map of the whole complex that just shows walls and the two opposing forces.

The game ends either when the raiders are wiped out or when they succeed in destroying the Isaac computer.

It's very unusual to see such a classy strategy game on a budget label. But don't let the 'strategy' label put you off, because this is a very absorbing game with plenty of action that will really test your abilities. **BW**



SECOND OPINION

Astounding! This is quite definitely the best strategy game I have come across on the CPCs. It must be, for I rarely treat myself to such games. Just looking at the graphics and listening to the sound-effects was enough to convince me. However, it only starts there: you'll be glued to your seat until either you or your oponent has been wiped out. **RpM**

GREEN SCREEN VIEW

Just as clear in green.

FIRST-DAY TARGET SCORE

Win at level 1

The Verdict

GRAPHICS 84%
- ☐ Attractively designed base.
- ☐ Good effects for shooting and explosions.

SONICS 58%
- ☐ Some nice sound-effects.

GRAB FACTOR 76%
- ☐ Easier than many such games to get into.
- ■ Still may not appeal to all players.

STAYING POWER 78%
- ☐ Two-player option and eight computer levels.
- ☐ Lots of variety in possible games.

***AA* RATING 82%**
- ☐ Strategy games usually cost more than the average, not less.
- ■ A horrendously long loader.

VAMPIRE

Code Masters, £1.99 cass, joystick or keys

As soon as you start to play this chillingly titled game you'll recognise a familiar type of game – a platform game where you run around colecting things and jumping over other things. The graphics are also reminiscent of something less impressive than we're used to these days.

The game takes place in the castle of old Drac himself, where you have to find five keys, fit them into five locks, open six magical shutters, then nip and collect a hammer, stake and cross before teleporting into deep space for a final battle using laser bolts and jetpack thrusters.

The character you control is... Hang on a minute. Laser bolts and jetpack thrusters? They can't be serious! Oh well, Dracula takes over a space station – I guess anything goes these days.

Back to the plot... You control Brok the Brave, and to search the castle you have the ability to jump at two different heights – gasps of amazement.

The castle rooms are filled with moving dangers that drain your power when touched. This can be replenished by getting various flashing food sources. The game ends when power runs out completely or you run into some hazard that kills you instantly. It's quite a good platform or exploration game with well-defined but small graphics and some knotty problems. It doesn't score much on originality but is very good value. **CB**

SECOND OPINION

The graphics are not from an Amstrad. The gameplay is not from this century (it's dated). But the price doesn't extract blood. Even though not highly original, this space-age find-and-kill-Drac game is absorbing. If you are not careful your monitor will begin to smoke. The game has certain addictive qualities that make it hard to turn away. **RpM**

GREEN SCREEN VIEW

Not much colour in the first place, but enough to see clearly in green.

The Verdict

GRAPHICS 57%
☐ Some well-designed, good-looking screens.

SONICS 30%
■ Just a few sound-effects.

GRAB FACTOR 62%
☐ Addictive platform action.
■ Unoriginal platform game.

STAYING POWER 65%
☐ 95 screens to explore.
☐ Some difficult sections to master.

AA RATING 68%
☐ Lovely budget price.



FIRST-DAY TARGET SCORE
Get a key in a lock.

SAS ASSAULT COURSE

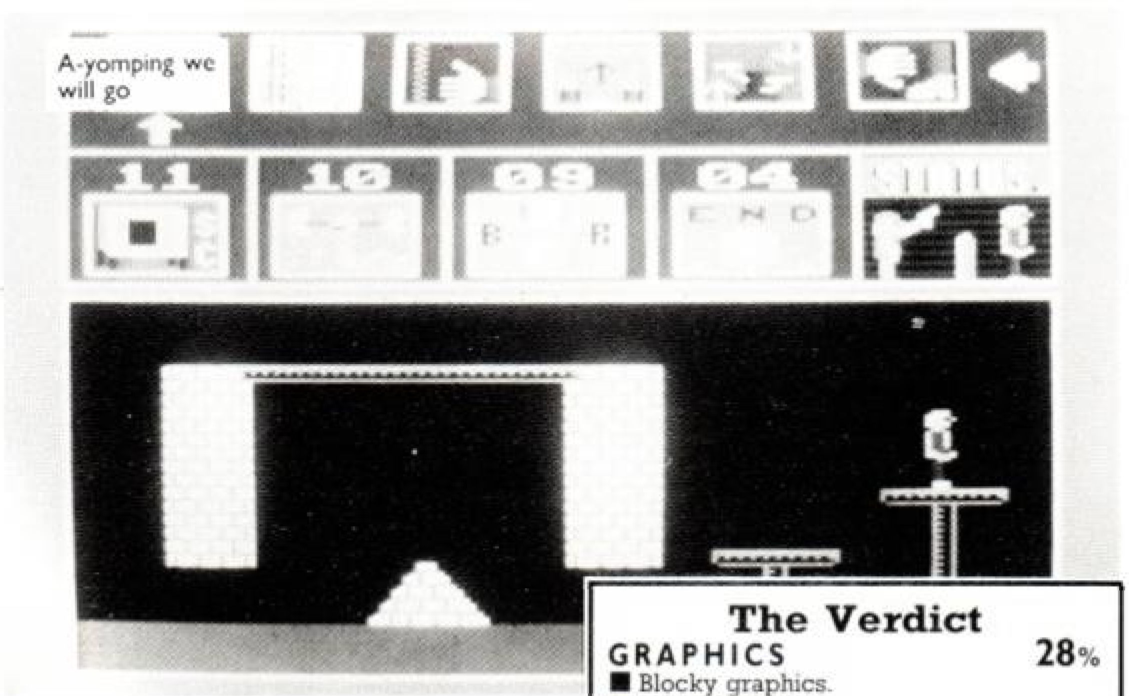
Atlantis, £2.99 cass, joystick or keys

I never much fancied the prospect of a troop of mud-covered SAS killing machines yomping across my computer screen. But here they are. In fact it's just one badly animated, blocky character who has to be guided through 22 screens of obstacles which have to be jumped over, climbed, crawled under and swung over.

You select from six icons (pictures rather than words on a menu) to decide which special action you will perform. While this is quite a novel idea it slows down the gameplay quite a lot. The six actions are jumping, climbing a ladder, climbing a rope, swinging on a rope, balancing and crawling. Because of the blocky main character, none of the animation is very good.

Most obstacles involve jumping onto platforms and then negotiating another type of difficulty. They get a lot more complicated as you go along. Falling over, performing the wrong move and time affect bravery, stamina and endurance respectively; if these run out the game ends. It's also brought to an abrupt halt by falling into water. So remember next time you run into an SAS man, push him in a pond and he'll drown every time.

The graphics let the game down badly. But a game with icons is original. The most frustrating thing about it is falling in the water, which immediately ends the game, sending you back to the start to play all those tortuous screens again. Not a bad budget game but it won't keep you hooked for long. **BW**


A-yomping we will go

SECOND OPINION

There are budget games and there are budget games – this is one of them. Chunky graphics – not my style. Squeaky sound – not my taste. £3 – that's okay. But what is the difference between stamina and endurance? In my opinion the answer is not worth knowing and the game is not worth playing. **RpM**

GREEN SCREEN VIEW

Muddy!

FIRST-DAY TARGET SCORE
50%

The Verdict

GRAPHICS 28%
■ Blocky graphics.
■ Jerky animation.

SONICS 22%
■ Only one little ditty.

GRAB FACTOR 44%
☐ Quite a challenge completing screens.
■ Death in water is frustrating.

STAYING POWER 37%
■ Not enough screens or variety.

AA RATING 48%
☐ Not too bad at the price.

DANDY

Electric Dreams, £9.99 cass, £14.99 disk, joystick or keys

The games based on the arcade game *Gauntlet* keep coming, but this one has got on the bandwagon a little late. It has the option for simultaneous two-player action like all the others and also has three different multi-load dungeons.

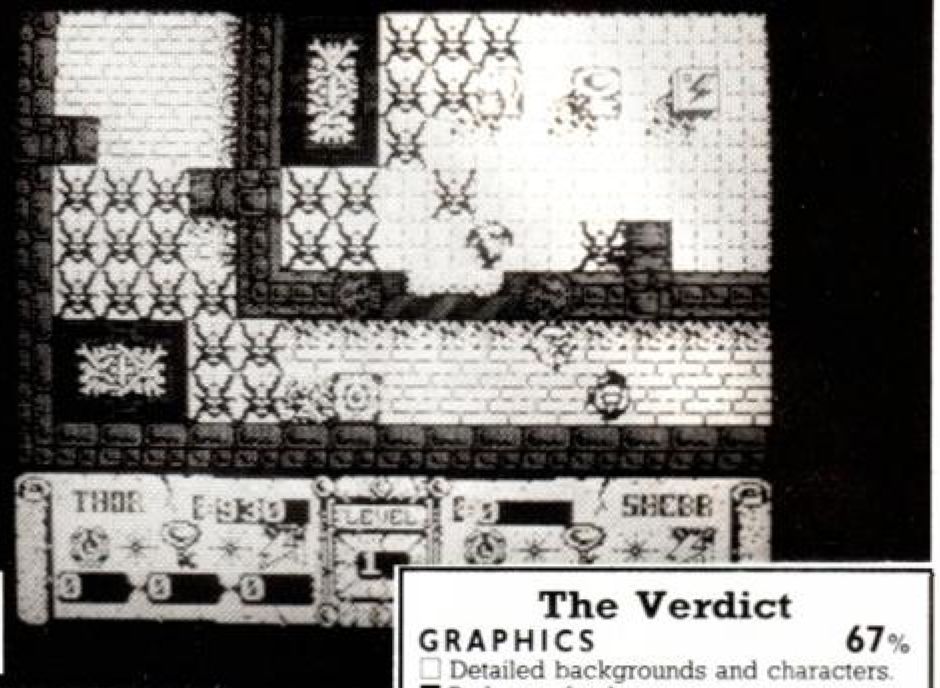
The game is very close to *Gauntlet* in concept, but the gameplay differs and the graphics even more so. You control one or two players in a dungeon, and must collect treasure, spells, food and keys to get through to the next level. The background graphics are detailed and atmospheric but don't use colour well.

Scattered all over the dungeon are various types of adversary who drain your energy when they touch you. They can be blasted or just avoided. You've got to find your way through the dungeon mazes to a staircase leading to the next level. Get through enough levels and you'll eventually need to load the next section.

The gameplay is reasonably quick but there are annoying pauses when the screen does not appear until after you walk off the edge of the previous screen. One good function is being able to swap treasure for energy when you near death and cast random spells to disorient, paralyse or kill monsters.

It's an enjoyable variation on the theme. But it falls down slightly by coming out some while after the others. And its weak colour use makes it look unimpressive. If you don't already have a *Gauntlet*-type game it's worth a look but doesn't offer anything new from the others. **BW**

FIRST-DAY TARGET SCORE
Complete Dungeon 1



A highly detailed dungeon

SECOND OPINION

If you want originality, don't look here. If you want a multi-channel driving beat, sorry. Perhaps you'd like vivid colourful graphics; no go. How about variety? Guess! But what you do get is a fairly entertaining game, a few hundred aliens to shoot, sore eyes, possibly backstrain, definitely deformed fingers – is it worth it? Yes, it has its moments. **RpM**

GREEN SCREEN VIEW

Dungeons have always been dark – surprisingly you can see everything in this one.

The Verdict

GRAPHICS 67%
□ Detailed backgrounds and characters.
■ Bad use of colour.

SONICS 27%
■ Just basic blasting effects.

GRAB FACTOR 78%
□ Addictive exploring and blasting.
■ Loses a lot by being beaten out by *Gauntlet*, *Druid*.

STAYING POWER 76%
□ Plenty of dungeons to complete.
■ Not much variety in the action.

AA RATING 74%
□ Good buy if you don't have a *Gauntlet*-type game yet.

BRIDGE

Infogrames, £12.95 cass, £15.95 disk, keys only

This is the second bridge simulator to come out in recent months. I think this new one is easier to get to grips with than CDS's *Colossus Bridge 4*. It allows a single player to play bridge against the computer, who controls both your partner and the two opponents.

The game is controlled from a main menu which has seven options: replay, random deal, deal number, scorecard, enter, dealer, and conventions. The random deal gives you a random hand, and the deal number allows you to select one of 100,000 pre-programmed deals. Once a hand is dealt the bidding can start.

The bidding isn't particularly well explained so you'll have to know alreadyhow to play bridge or use common sense when bidding. Once the contract is settled you play the hand – you play both hands when North-South settle on a contract. The card-playing screen is laid out well and has a cheat option if you want to see the other players' hands.

Once the hand is finished and you're back to the main menu you can replay the hand, check the scorecard or change the dealer. The 'enter' option allows you to enter all four hands and then play. The conventions that can be recognized are Stayman, Blackwood, Gerber, five card majors, strong two clubs, weak one no-trump opener, jacoby and two no-trumps = 11-12points.

Despite not fully understanding the bidding system I really enjoyed playing the game. It gives you a good computer opponent and of course endless variety of hands to play. A great companion for when you want to while away some time. **BW**

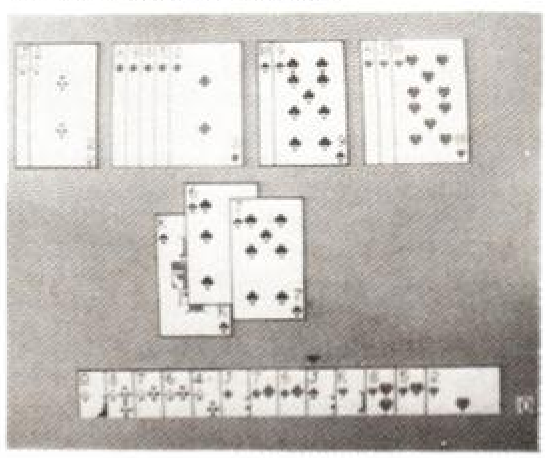
FIRST-DAY TARGET SCORE
Outscore computer players.

SECOND OPINION

Must be the best-implemented bridge program yet to appear. The graphic display instead of the usual text is effective. More importantly, the program plays a strong, sensible game and there a pleasing number of cheat options – which I'd never get away with when playing against my mother-in-law. **BC**

GREEN SCREEN VIEW

Red and black cards can still be identified by symbol shapes.



The Verdict

GRAPHICS 45%
□ Good card displays.

SONICS 0%
■ None at all.

GRAB FACTOR 68%
□ Well-designed menus make playing easy.
■ Some knowledge of bidding is needed.

STAYING POWER 72%
□ The infinite variety that cards supply.
□ Options for defining, or playing set hands.

AA RATING 70%
□ An enjoyable and easy-to-use game.
■ It's expensive.


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SUPER ROBIN HOOD

Code Masters, £1.99 cass, joystick or keys



4. Walk along the platform to get the tablet and then exit right to the next screen.

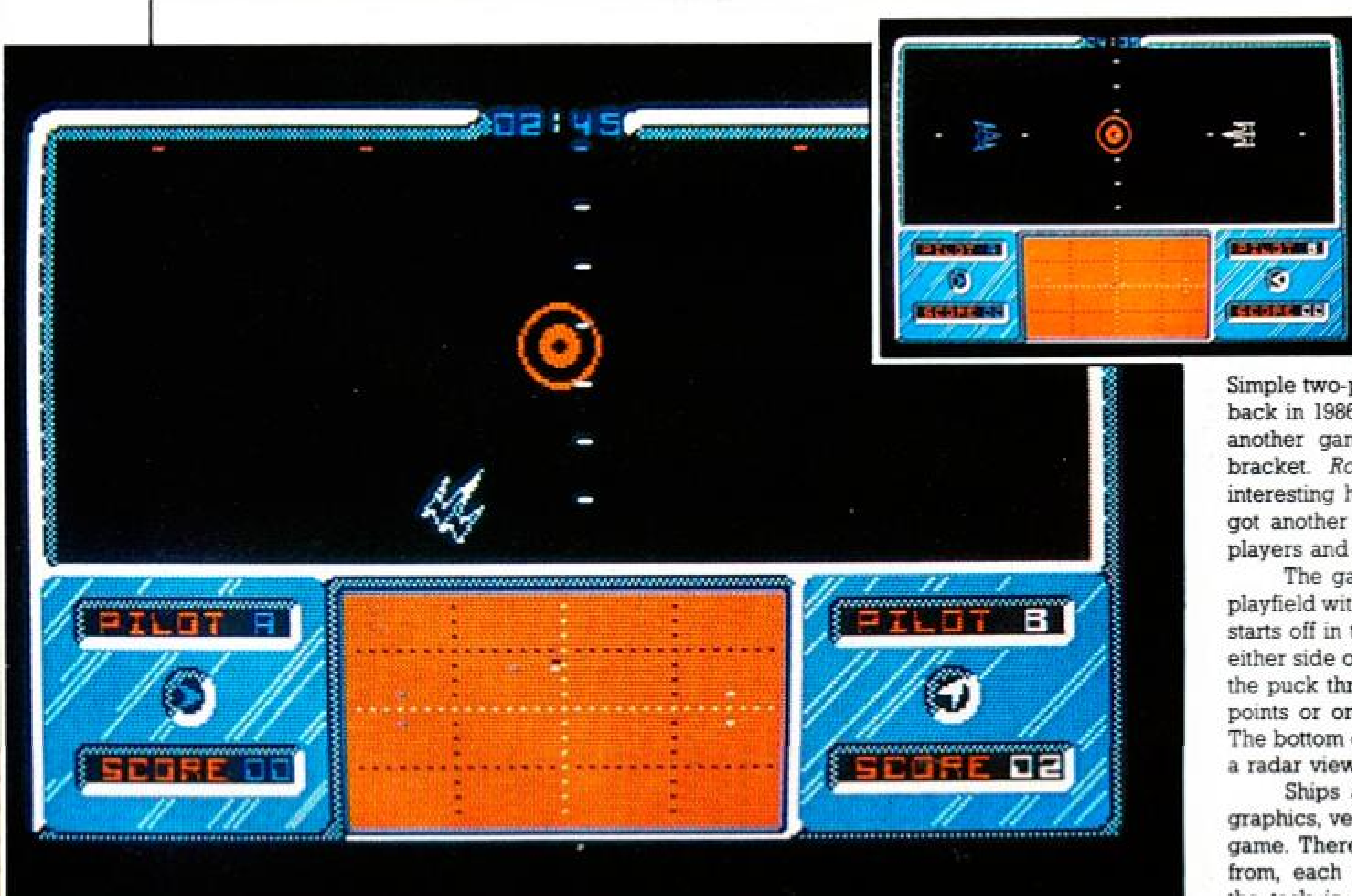
3. Walk off lift onto the bottom step and loose off five arrows at the guard's feet.

1. Grab the key to get the lift moving.

2. Across the telescoping platform to get to the lift.

HYPERBOWL

Mastertronic, £1.99 cass, joystick or keys



Simple two-player games made quite a comeback in 1986. The trend is continuing with yet another game, but this time in the budget bracket. *Room Ten* and *Xeno* were both interesting head-to-head contests. Now we've got another space-age contest involving two players and a puck.

The game takes place on a rectangular playfield with a goal near either end. The puck starts off in the middle of the field with a ship either side of it. The ships must shoot or bump the puck through the opponents' goal for two points or onto their back wall for one point. The bottom of the screen shows the score and a radar view of the puck and the two ships.

Ships and puck are drawn with vector graphics, very reminiscent of an old *Asteroids* game. There are 10 different ships to choose from, each behaving slightly differently. But the task is always the same: out-score your opponent.

Code Masters is rapidly establishing itself as a strong threat to Mastertronic as king of the budgeteers. It hasn't been around long but its products so far have been of a high quality. 'Super' is one of my least favourite adjectives (remember Reggie Perrin? Great! Super!), but the hero clad in Lincoln green lends it respectability by being a ...errr, super game.

The plot is familiar: the Sheriff of Nottingham has captured Maid Marian and you must rescue her from his castle. The game manifests itself as a platform type – with good graphics, great animation, some tough problems and excellent speech synthesis. Hidden around the castle are throbbing hearts which you have to collect before rescuing Maid Marian from the east tower.

Robin is delightfully animated, running around, climbing ladders, jumping, crouching and firing arrows. You've got a health gauge that suffers every time you are hit by the many dangers or fall too far. Dangers include creepy-crawlies that move along set patterns in the rooms and guards who will loose off arrows across the screen. If health reaches zero you collapse in a heap and, true to the legend, fire an arrow into the air, your mortal remains to be buried where it lands.

Apart from the hearts two other objects can help you along the way. Tablets replenish the health gauge and need to be used sparingly. Spinning keys are even more useful: once picked up they activate a mechanical device elsewhere in the castle. These are mostly lifts or sliding platforms that bridge a gap between two platforms, allowing you to explore the castle further.

SECOND OPINION

Lots of lovely speech. Lots of loathsome characters (bar Robin and Maid Marian of course). Lots of labyrinthine rooms. Lots of lively gameplay. In fact, it's a lot of game for less'n £2. **RpM**

GREEN SCREEN VIEW

Robin Hood, Robin Hood riding through the glen... good see everything perfectly.

One excellent feature of the game is the speech synthesis – it's very clear and varied. A fairly extensive vocabulary is shuffled around so that you won't get bored with Marian saying, 'Help me, Robin!' when you pick up a heart because sometimes she says, 'Save me, Robin!' Not earthshattering, I grant you, but it's tremendous speech and in a budget game too.

Despite the pleasant background graphics you may find they clutter up the view. But the programmers, Philip and Andrew Oliver, have even allowed for this with an option to remove them.

It's an easy game to get into but with plenty of screens and hazards to keep you occupied. The catchy tune that plays throughout the action, the speech, animation and gameplay all go to make a very enjoyable game at a marvellous price. **BW**

FIRST-DAY TARGET SCORE
15,000

The Verdict

GRAPHICS 74%
☐ Good use of colour.
☐ Well animated main character.

SONICS 86%
☐ Excellent and varied speech synthesis.

GRAB FACTOR 84%
☐ Easy to get into.
■ Unoriginal platform action.

STAYING POWER 82%
☐ Plenty of screens to get through.
■ Lacks variety in the problems.

AA RATING 85%
☐ Great price tag.



You can take on another player or the computer, which puts up very stiff opposition on any of its three skill levels. When playing against the computer you really are up against it, because it fires so much faster than you – it can blast bullets in the puck's direction and overwhelm you if you're not careful. Well-placed bullets and nudges with the ship can overcome it but it's always a long, hard battle.

SECOND OPINION

If you enjoy hectic gameplay, a jolly tune, two-player games, awkward directional controls, a £2 price tag and a satisfying blast, then what more could you want: Hyperbowl *has it all!* **RpM**

GREEN SCREEN VIEW

All is visible.

Gameplay is complicated by the behaviour of the ships. They can accelerate forward, brake to a sudden halt and spin around. The difficulty in controlling them stems from their inertia and occasional strange movement. In effect the craft suddenly accelerate rapidly and then bounce back as if striking a wall. The only way to stop it is to move in another direction. None of the ships is easy to control at first, but they vary in speed and manoeuvrability.

Some ships are also armed with homing missiles that automatically head for the puck, but the action is usually so hectic that their value is limited. Much more useful is ramming the ship into the puck at full speed to blast it across the play area.

You can play single games or take part in a tournament against the computer, where you have to defeat five players of gradually increasing skill level.

The graphics aren't very impressive but there's some good music on the title screens. Two-player games can be very competitive. Against the computer it's a constant battle to stay in contention. Should prove very popular. **BW**

The Verdict

GRAPHICS 31%
■ Very little on screen.

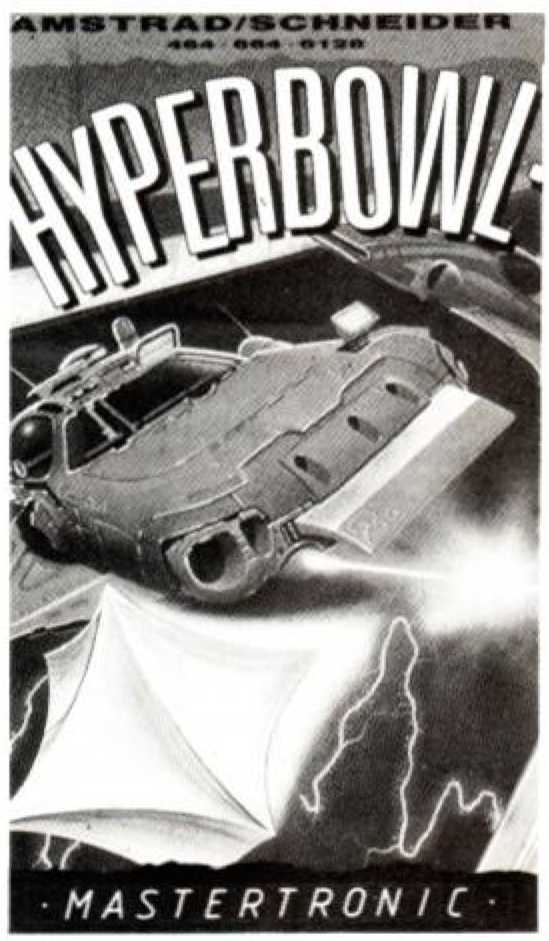
SONICS 60%
☐ Good title tune.
☐ Hectic blasting in the game.

GRAB FACTOR 81%
☐ Needs constant concentration.
■ Controls can be awkward.

STAYING POWER 76%
☐ Competitive two player action.
■ Lacks variety after a while.

AA RATING 80%
☐ Nice price tag.

FIRST-DAY TARGET SCORE
Win at easy level



DONKEY KONG

Ocean, £8.95 cass, joystick or keys



It's a bit surprising to see a crusty old game like this dragged back into the limelight. But, surprisingly, Ocean has managed to produce a very creditable verion. It may well bring a nostalgic tear to your eye for the good old days.

For those who missed the birth of computer games, *Donkey Kong* was, and still is on the Amstrad, a four-stage arcade game where Mario the carpenter tries to rescue his girlfriend from a gorilla.

The first screen involves simply running up a series of ramps and ladders while Kong rolls barrels down at you. You can jump over them or bash them with a hammer. Once you reach the top, Kong disappears with the girl to the next screen.



SECOND OPINION

Yes, sir! This is an excellent reproduction of one of my old favourites. The graphics are bold and amusing. The sonics will have you swinging – even the sound-effects are pleasing. But, oh dear, I still can't complete the game – why is every version so difficult? Please bring out an easy version just for me. If you haven't played **Donkey Kong** ***get this version. Even if you have played it a million times get this game; it is a decent version.*** **RpM**

GREEN SCREEN VIEW

Just as good in green!

Here you have to get past a number of pie-carrying conveyor belts, moving fireballs and telescoping ladders to reach the top of the screen. On the third screen you need to use some lifts and avoid a large bouncing girder as you hop around many platforms. The last screen is where you gain victory by removing the supports from four girders so that Kong topples to the bottom of the screen.

Each screen contains bonus-score items to pick up. If you manage to get through them they are repeated, only harder. The graphics and sound-effects are good, and the gameplay retains much of its addictiveness. The game





The Verdict

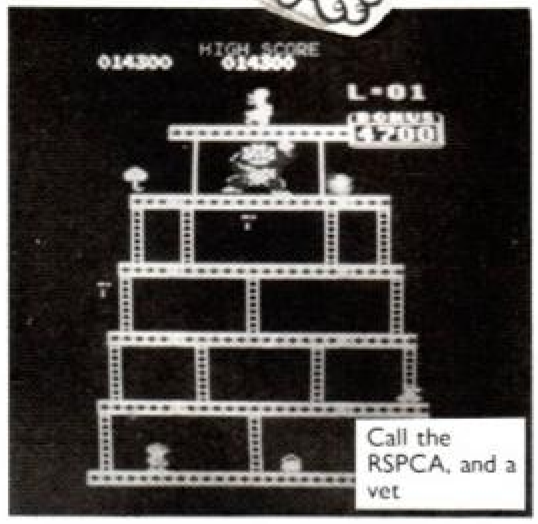
GRAPHICS 65%
- ☐ Attractive colourful screens.
- ☐ Nice touches like Kong climbing ladders.

SONICS 64%
- ☐ Pleasing ditties and twiddly bits.

GRAB FACTOR 70%
- ☐ Addictive 'one more go' gameplay.
- ■ Nauseating lack of originality.

STAYING POWER 61%
- ☐ Levels get tougher.
- ■ Not enough screens or variety.

AA RATING 66%
- ■ A very old game; what's needed is new ideas for new games.



Call the RSPCA, and a vet

does seem simple by today's standards, though. Despite being a good version of the game I'd still rather see original software rather than rehashes of five-year-old games.

BW

FIRST-DAY TARGET SCORE

Get the girl.



PROFESSIONAL SNOOKER SIMULATOR

Code Masters, £1.99 cass, keys only

Anybody out there remember Magnificent Seven Software and a game called *Tournament Snooker*? No. I thought not. That's who first released this game back in the middle of 1986; we first reviewed it in issue 8.

'... Certainly the best snooker or pool game I've seen on the Amstrad – smooth and realistic' is what former editor Peter Conner had to say about it. All all these months later that statement still holds true. Like all PC's quotes it was built to last.

This incarnation of the game has no changes from the last one, so don't get caught out by buying it twice, even though the price has come down three quid from before (well, £2.97 actually), making it even better value.

The game views the table from above and incorporates all the rules of snooker. The animation of the balls is very smooth and fast. They behave accurately as well. There's a fascinating demo that shows you the standard that's possible. But you'll have to practise to get good. (They say expertise in the real game is a sure sign of a misspent youth – 'they' will have to do studies over the next few years before coining an electronic update.)

You can't play against the computer but you can't have everything. Among options are a replay of your last shot, spin, concessions, practice mode and asking your opponent to play again. The presentation and implementation of the game has been well thought out so that it's the closest simulation you can get.

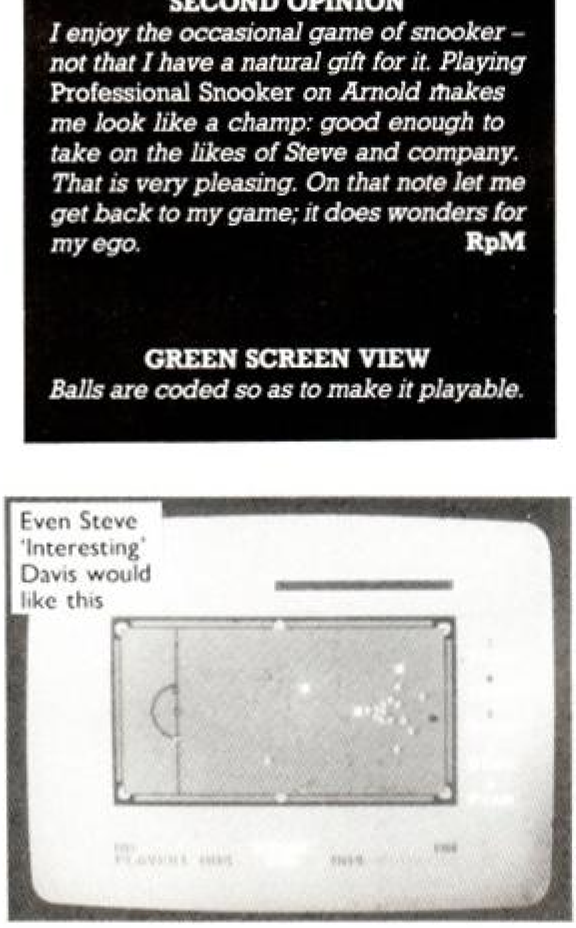
SECOND OPINION

I enjoy the occasional game of snooker – not that I have a natural gift for it. Playing **Professional Snooker** ***on Arnold makes me look like a champ: good enough to take on the likes of Steve and company. That is very pleasing. On that note let me get back to my game; it does wonders for my ego.*** **RpM**

GREEN SCREEN VIEW

Balls are coded so as to make it playable.

Even Steve 'Interesting' Davis would like this



An excellent feature of the game is that instead of just guessing from the overhead view the direction of shot, an shadow image shows you exactly where you will hit the object ball and makes the game much more playable. Far be it from me to argue with PC – still the best snooker simulator on the Amstrad. **BW**

FIRST-DAY TARGET SCORE

Double-figure break.

The Verdict

GRAPHICS 67%
- ☐ Smooth, fast ball movement.

SONICS 21%
- ■ Thonk, thonk, plonk.

GRAB FACTOR 64%
- ☐ Great demo mode.
- ☐ Easy cue positioning and aiming.

STAYING POWER 74%
- ☐ Snooker fans will never tire of it.
- ■ Can't play the computer.

AA RATING 76%
- ☐ The best snooker simulator.
- ■ Snooker still isn't very exciting on a computer.

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FEUD
Mastertronic, £1.99 cass

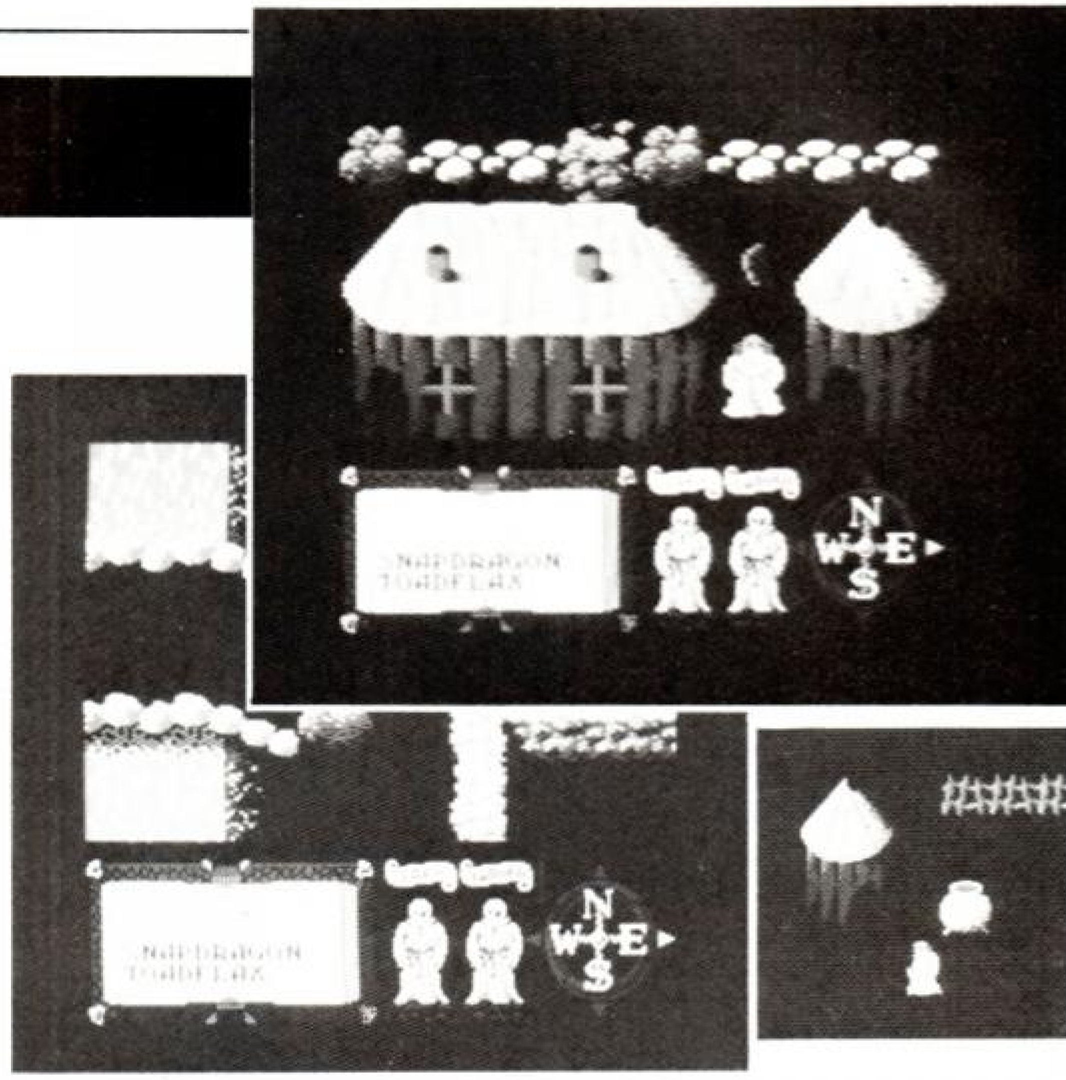
This looks like being a very interesting game from the budget bracket, although the demo copy we received basically contained just the graphics. The feud is between two wizards and takes place across 96 of these delightful screens.

The aim is simply to destroy the other wizard by using magic spells or even hand-to-hand combat. Each wizard has a cauldron where he can mix up the spells and then rush off to try them out on the opponent. The spells are contained in a spell book at the bottom left of the screen; you can flick through its well-animated pages.

The ingredients for the spells have to be picked up from around the game. Most of them work only a limited number of times before you have to get more ingredients.

Other characters appear in the game and by casting spells on them, turning them into zombies or dopplegangers, you can use them to your advantage. There are lots of fun spells that let you teleport, speed up, shrink, shoot fireballs – a total of 12.

The gameplay wasn't much on show in the preview version. But by the time you read this Mastertronic should have the game out on the streets – watch out for it. **BW**



EXPLORER
Electric Dreams, £9.99 cass, £14.99 disk, keys and joystick

Explorer is a sort of adventure set in the future, 30 billion lightyears from the nearest service station.

You play the part of an outcast, fated to wander the 40 billion locations of the emerald planet, in search of the nine parts of your space ship.

There is no attempt at a title-page for this game – you're straight in on the action. (I think it's the action.)

You can wander about the planet at three different heights. The first is ground level, and the view is in intricate detail. You can move forward, backward and from side to side. There are supposed to be some aliens, but you will probably be asleep by the time you see one.

You know how some adventure games take hours and hours to play, but seconds to get into – well, this one takes hours and hours to get into (if at all) and aeons to explore. This is mainly because scene drawing is amazing...ly slow and boring. You can leave beacons around the planet to help you survey it; however, this becomes tedious as you very soon get out of their range. There is no sound that deserves a mention. If there was any, its insignificance was drowned by the whirring of my disk drive. **CB**



SECOND OPINION

It's a wonderful concept to have a game with billions of locations to explore and some delightfully varied graphics. The trouble is it is incredibly boring to play. An adequate substitute for Mogadon and Horlicks. **BW**

GREEN SCREEN VIEW

Visible but still boring.

FIRST-DAY TARGET SCORE

Play for three hours without falling asleep.

The Verdict

GRAPHICS 86%
- □ Intricate detail in every scene, including semi-moving water!
- ■ Very slow scene-drawing.

SONICS 0%
- ■ Couldn't hear a thing.

GRAB FACTOR 34%
- ■ No action whatsoever.

STAYING POWER 15%
- □ Literally billions of locations to search through.
- ■ Nothing happened in the first five hours of play.

AA RATING 19%
- ■ £10 is a lot for a turkey.

INFODROID

Beyond, £9.95 cass, joystick or keys

Many years in the future, the universe revolved around one planet, the administrative capital. Civilization had not yet advanced to a fully automatic delivery system for packages. Guess what? This is where you come in: you're Postman Pat of the far future.

You control a droid along many causeways, delivering packages here and there. On either side of these causeways are three speed platforms which transport the droids in both directions. The speed platforms get faster the further from the causeway you get.

SECOND OPINION

If you like delivering packages or if you have an unquashable desire to be a postman, Infodroid *has lots to offer. The opening screen is full of zest: neat graphics, sound not too unbearable, and the action looks highly playable. Unfortunately it lacks staying-power material.* **RpM**

GREEN SCREEN VIEW

Just clear enough to play.

Along the causeways are manholes – whoops, access chambers – into which you descend. These can be company despatch departments, garages, information centres or junction rooms.

Apart from delivering packages, there is little else to do. However, as necessary in all societies, there are garages where you can get your droid repaired – for a price!

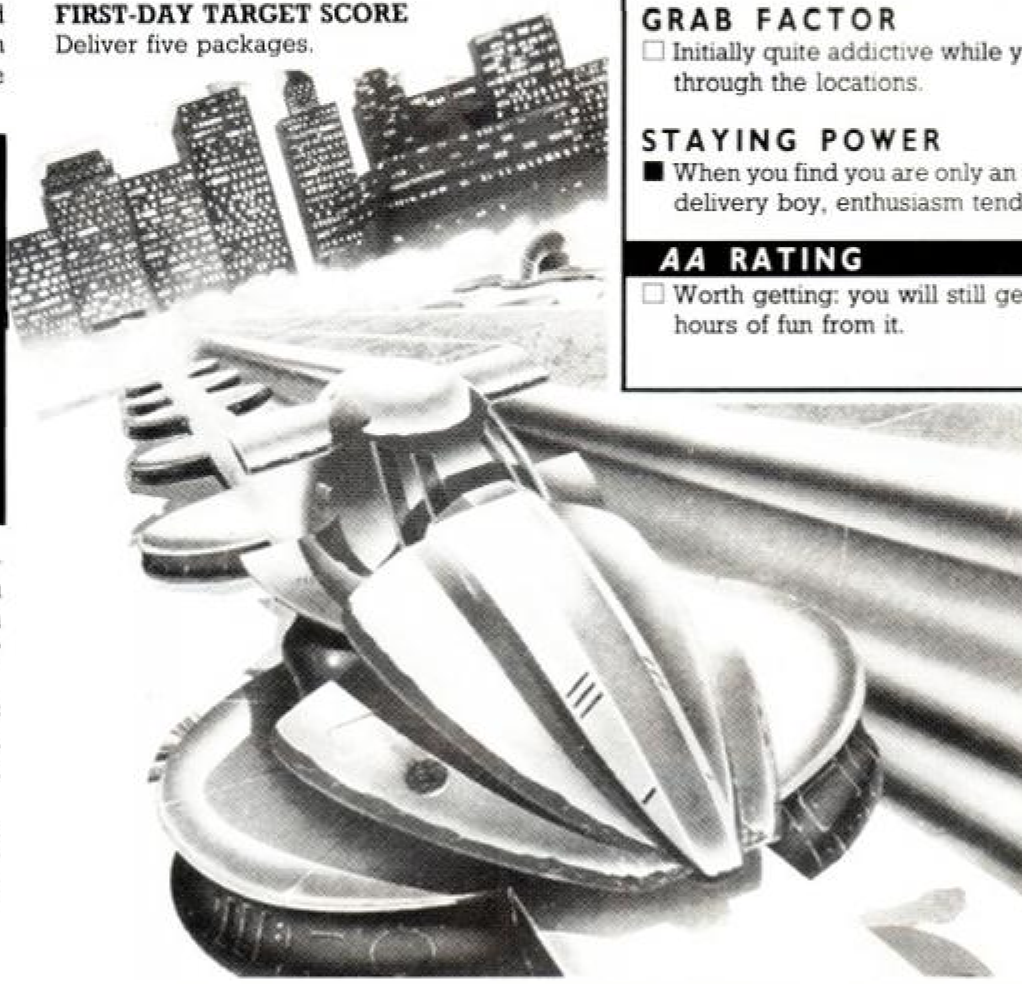
At despatch departments, you can pick up packages to take to another company or you can deliver packages from other companies.

Information centres allow you to see the state of your droid's equipment. Junction rooms connect causeways.

All in all, not a bad game. Sound lack – umph! This game is saved by some very nice touches, like the lifts by which you descend into the access chambers. **CB**

FIRST-DAY TARGET SCORE

Deliver five packages.



The Verdict

GRAPHICS 84%
■ Fair to piddling.

SONICS 67%
■ Sound lacks any sort of excitement.

GRAB FACTOR 58%
□ Initially quite addictive while you search through the locations.

STAYING POWER 54%
■ When you find you are only an upgraded delivery boy, enthusiasm tends to flag.

AA RATING 63%
□ Worth getting: you will still get many hours of fun from it.

SUMMARY SECTION SUMMARY SECTION SUMMARY

KONAMI'S GOLF

Imagine, £8.95 cass, joystick or keys

A reasonable golf game with 3D presentation and nine holes. Lacks variety, though, and only the two-player match play holds any interest. A little too easy and too much green on the screen – why not some browns or autumnal reds?

The Verdict

GRAPHICS 59%
□ Good 3D views.
■ Green, green and more green.

SONICS 34%
■ Nobody even shouts 'Fore'.

GRAB FACTOR 60%
□ Fun learning the holes.
□ Two-player match play is competitive.

STAYING POWER 45%
■ Quickly gets repetitive.

AA RATING 52%
■ Won't present a challenge for long.

HIGHLANDER

Ocean, £8.95 cass, joystick or keys

A sword battle against different backdrops and three increasingly difficult opponents. The opponents load separately with the new scenery. Quite tricky swordfighting and nice graphics, but nothing very original about it.

The Verdict

GRAPHICS 71%
□ Good animation of fighters.
□ Colourful characters and scenery.

SONICS 46%
□ Good fight noises.
■ Painful version of *It's a Kind of Magic*

GRAB FACTOR 52%
□ Quite absorbing fighting.
■ Not easy to control sword moves accurately.

STAYING POWER 44%
■ Three very similar opponents.
■ No variety in the fighting.

AA RATING 48%
■ Chalk up another failed film licence.

MIAMI VICE

Ocean, £8.95 cass, joystick or keys

An incredibly frustrating game. You drive around a city trying to apprehend drug dealers. Control of the car is appalling – more car crashes than any American television show. Apart from driving there are locations to visit, where precious little happens.

The Verdict

GRAPHICS 60%
□ Pleasant driving screen and locations.
□ Nice explosion – you'll see it a lot.

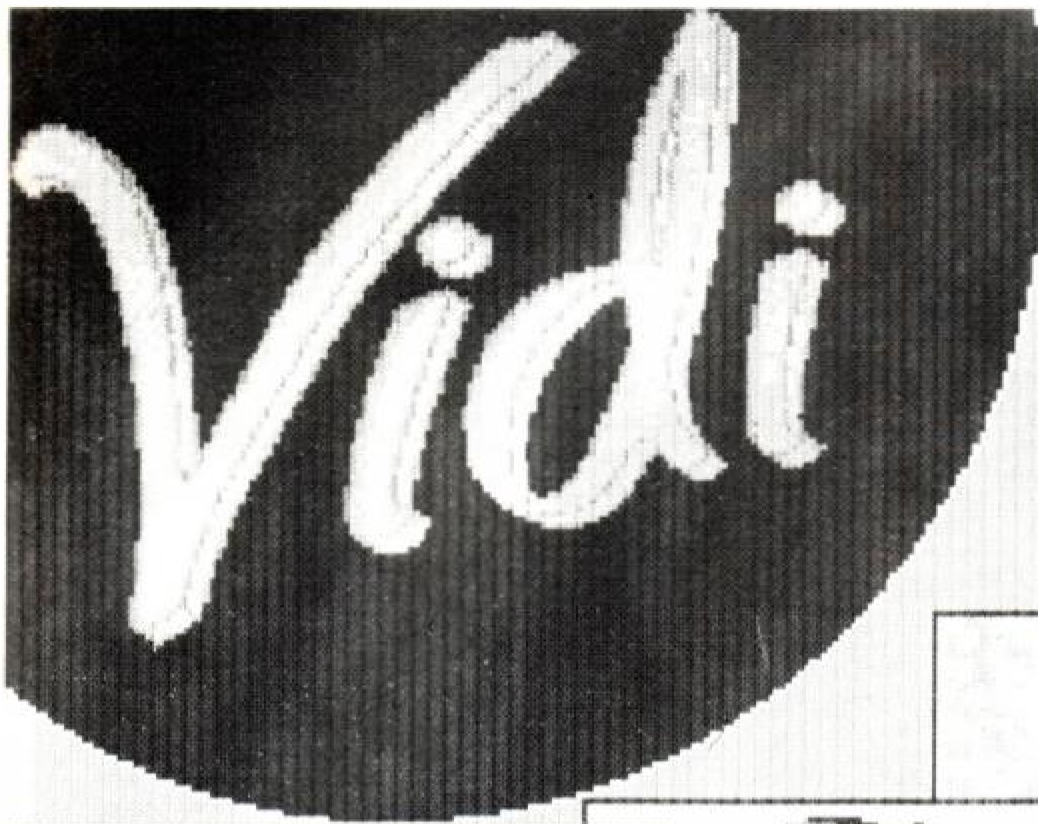
SONICS 20%
■ Ear-screeching version of theme tune.

GRAB FACTOR 17%
■ Incredibly difficult not to crash the car.

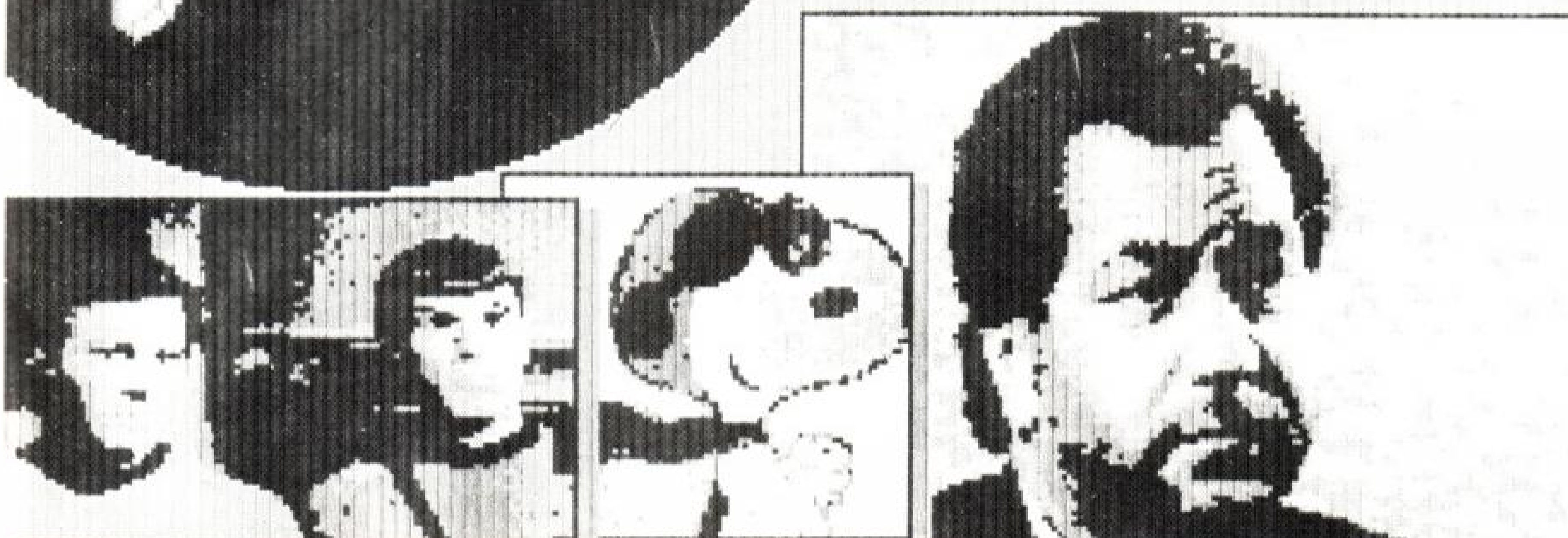
STAYING POWER 31%
■ Just driving around and visiting bars.

AA RATING 24%
■ Please, please, please, no more TV and film licences.





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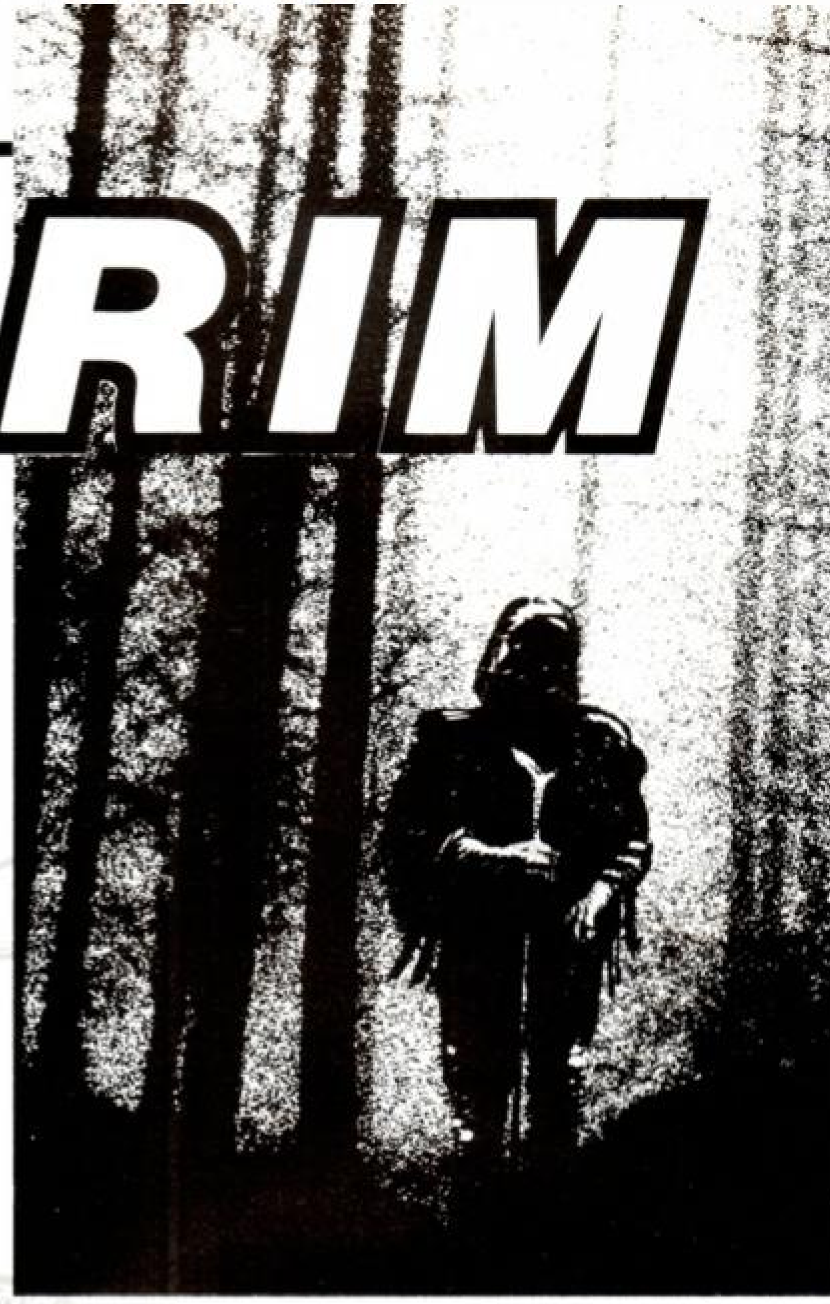
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PILGRIM



This month sees the Pilg out on the razzle with Dodgy Geezers *from Melbourne House, plus a brief lookette at* Die You Vicious Fish *from the man who brought you* Al-Strad *for £1.50. PLUS the next in the Pilg Adventure Programming series, readers' tips, readers' troubles, and readers' tales...*

Die You Vicious Fish

Rhinosoft (19A Bradgate Avenue, Cheadle, Cheshire, SK8 3AQ), £1.50

Paul Gill of Rhinosoft gave us the cheapie home-brew Al-Strad earlier this year which the Pilg quite enjoyed. Now he's sent in *Die You Vicious Fish.*

This is a rather, er, strange game. You are deposited outside a hotel at which are staying ten vicious fish. Your task is to enter and, with the aid of your fish-blasting backpack, destroy them.

The Pilg fell foul of the 'lack of reviewer's hint-sheet' syndrome with this one. I managed to despatch a few fish using my trusty pack (activated simply by PRESSing it) and – in one instance – an oven, but I didn't manage to get very far through the locations. The program kept telling me that I 'couldn't do that...yet!' which – in true Scott Adams style seemed to indicate that I would be able to one day. When I do, I'll let you know.

What I did see, however, was enough to tell me that there is a reasonable degree of good humour here, quite a few spelling mistakes, and one bug which caused the program to drop back into the Basic in which it appears the game is written. There's also a nice title screen (designed by one Ste Pickford 'who did the art for such games as *Xeno* and *Ghosts'n'Goblins*' – wow, man) and some music that is about as strange as the plot that follows.

There's a red telephone in the hallway, where you can ring for help, but I think the program must have been pulling my leg, because I still can't get past the little frozen door, or the manager's office, or make use of the excitable cat. Others,no doubt, will soon be shelling out their £1.50 to see whether they can do better. Whether it's worth it or not, I'm not sure – but then nowadays you can't get a game much cheaper... And I have a feeling I'll be loading it up again...

Atmosphere 58% Interaction 47% Challenge 59%
Overall AA Rating 61%

Dodgy Geezers

Melbourne House, Price ?.??

Hrumph... The Pilg doesn't quite know what to say about this one. Every so often every adventure reviewer worth his rod and staff sits down and asks himself, 'Is this game really as awful as I think it is? Or am I simply unable to appreciate its sterling qualities?' Playing *Dodgy Geezers* brought on one of these attacks of conscience, which I deal with as follows...

'Tis a load of bunkum, fellow Pilgs. 'Tis not worth the money. 'Tis truly a dodgy game. And 'tis a long way short of anything I'd expect from a well-established company like Melbourne House.

Let's face it – only a few months ago, Melbourne House was at the top of the adventurer's league – or near it. *The Hobbit* (say what you like about it) is without doubt a classic – even its bugs have become legends in their own lifetimes. *Sherlock* was, well, a magnificent attempt. *Lord of the Rings* was, well, magnificently flawed. *Terrormolinos* was good for a laugh. *Castle of Terror* was if not terrifying, at least competent. *Hampstead* had some people in fits...

...And now *Dodgy Geezers*. If anything's wrong with this game it's its sheer, unutterable, averageness. There's nothing remarkable about it – either in the good or awful sense. There don't appear to be any bugs. It's just rather uninspiring.

Your role, as a recently-released-from-prison Dodgy Geezer is to team up with some dodgy chums and engage in some dodgy enterprises. There are occasional graphics in the game, mostly of your colleagues, who are displayed together with their criminal records. Input is very limited – mainly to two-word verb-noun structures.

The passage of time is indicated by messages like 'It is Friday night' etc. You can spend the night in any location, however unlikely (I spent it in the training room at the gym on at least one occasion). The importance of time is mainly to do with certain events connected with your life of crime (in particular the arrival of shipments, dogs and bullion trucks) and is about the only successful feature of the program – even if a little limited.

Interaction with other characters is extremely limited – and is mostly a question of being in the right place at the right time whereupon if you fulfil certain conditions they will give you tips or otherwise assist – or assassinate – you.

Dodgy Geezers boasts a certain mild humour of the kind asociated with *Minder*, East End accents, and dropped 'aitches. Examining most objects gets you the reply 'Can't see nuffink much' and if you try to follow someone, you're told, 'He's a slippery geezer – I lost him.' In fact you get told this even if there's no one to follow in the first place.

So – no serious bugs, no big surprises, no enormous disappointments – just another game ... yawn ... zzzzzz....

And so the Pilg drops gently off to sleep, dreaming of a new mega-game from Melbourne House – if only this were it... but it isn't.

Atmosphere 61% Interaction 53% Challenge 61%
Overall AA rating 50%

Pilgrim's postbag

And first a long letter from **Conor Maguire** of County Fermanagh, of which one part may be of interest to Boggit players...

"One good clue is to 'Throw the Line in the dungeon and pull it'. This has the effect of making the window come down the wall, and so allowing escape, but also has the effect of causing the line to disappear – it is needed to start the boat (by typing 'tie line') to cross the river. This problem can be overcome by typing 'Delta 4' which brings you to Delta 4's offices when in Part 2. (Type this when in the dungeon, without throwing or pulling the rope.) Then type 'Boggit', which brings you back to the adventure, only you are outside the dungeon and still have the rope."

Thank you, Mr Maguire. And I look forward to seeing your game, *Phantom of the Opera*, which, dear readers, he is currently writing for our delight.

Now **RD Lawson** of Aldershot, who is in doubt about the existence of the Hobbit. This smacks of sacrilege, Mr Lawson – everbody knows the Hobbit exists, but the gentleman writes:

"I have recently become the proud owner of an Amstrad CPC 464, being a Spectrum owner of some years' standing, and although I am exceedingly impressed with the Amstrad computer, I am horrified to find out that there is no compatible software for *The Hobbit* adventure, at which I was making reasonable progress. There is now a great void in my life – will I never solve that particular adventure, or has Melbourne House plans to produce a program suitable for the Amstrad?"

Well, either Mr Lawson's got it totally wrong, or else the Pilg's been playing far too many adventures and needs to see the men in white coats. I've played *The Hobbit* on many machines, including the Amstrad, and although it differs in certain minor (mostly bugged) ways, it remains the same old chestnut. Persevere, Mr Lawson – someone, somewhere near you, has the keys to the Goblin's Dungeon.

There's also a version of *Lord of the Rings*, but **Brian Riley** doesn't think much of it:

"I bought the disk version of *LOR* at about the same time I obtained my copy of *Hitchhikers*. Considering that I paid roughly the same amount of money for these two games I must confess that I feel I have been ripped off.

"To be quite frank, *Lord of the Rings* is an atrocious game and certainly doesn't warrant the asking price for it. The game is riddled with bugs which, although well documented, I knew nothing about at the time of purchasing it. To date each time I have loaded the game it has at some stage crashed, hardly a satisfactory environment for enjoying an adventure.

"However, my gripes with *Lord of the Rings* don't end there. The responses from the game are, at the very least, painfully slow, even to the most simple of commands. Some of the more complex actions can take so long to obtain a response that one's enthusiasm for the game, already limited to start with, has receded. Compare this with the response time for a Level Nine game, or even an Infocom game, which takes every opportunity to access the disk drive.

"The frustration with the parser is not limited to the single problem of response time. It is stretched to breaking point with the dubious and totally useless response "Sam waits". What purpose this serves in the game I can't imagine. It certainly doesn't add any atmposhere to a game which cries out for this priceless commodity.

"According to the packaging *Lord of the Rings* boasts an 800-word vocabulary, the same as *Hitchhikers*. This I find very doubtful especially as the game doesn't recognise the noun 'all'."

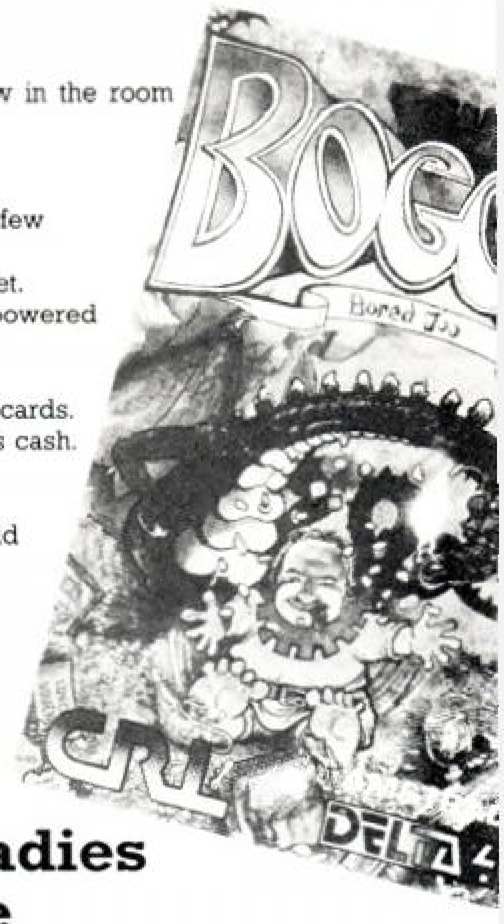
Phew!!! What a scorcher! I don't think Mr Riley is ever going to get a job doing PR for Melbourne House – though perhaps some of their competitors might want to offer him a job. I agree that *LOR* has some pretty massive defects, but perhaps I was luckier with my version than some, or perhaps I'm just more patient. Be that as it may, there's no doubt that it does make things rather difficult for the player, and the price is on the high side (though not as much as *HHGTTG* in the shop near me – Mr Riley must have got his on the cheap). Still it used to get into the Pilg's readers' charts quite often, which either says something for the game or about the sort of people who send in chart forms. Hmmm...

Clue-sniffing with the Pilgrim

In response to this month's mail, we present a number of solutions by special request, and some sent in by devoted Pilgs. These Honorary Heroes include Darren Waugh, Conor Maguire, Peter Dupont, and of course my honourable self. We're a bit short of space this month – but never fear, clues aplenty are in the Pilg-line...

Mordons Quest...

We've told you before, but we'll tell you again – the Pygmy and the Plant are linked puzzles. Solve the first and you'll solve the second. The first can be solved with bit of puff and a pipe (of sorts). Be poisonous!



Fantasia Diamond

The glass can shatter the window in the room with the chest. Be high-pitched!

The Boggit

The Goblin's cauldron contains a few surprises.
Examine windows in Smelly's toilet.
Light up your life with a battery-powered sword.
Smoking kills the beholder.
The minion has a taste for credit-cards.
Birds have a soft spot for Goblin's cash.

Return to Eden

Wear the foxgloves to get the cold leaf.
The leaf freezes the quagmire.
Throw the vine at the woodpile.
Squeeze the log to water the plant-bulb.

Lords and Ladies of Adventure

Once more the roll-call of the brave and battle-weary is printed on these hallowed pages. Remember that should you fall upon the path, one of the following Lords and Ladies will be prepared to answer your call for help ... providing you send a stamped addressed envelope and forbear from phoning at anti-social hours!

Castle Blackstar, Terrormolinos, Forest at the Worlds End
Derek Roberts, 40 Allen Grove, Stokesley, Middlesbrough, Cleveland, TS9 5DB

Terrormolinos, Urban Upstart, Red Moon, Gremlins, Hobbit, Marsport, Dun Darach
Lee Anthony, PO Box 424, Althorne, Chelmsford, Essex, CM3 6UR

Twin Kingdom Valley, Hobbit, Heroes of Karn, Very Big Cave Adventure, Lords of Time, Castle of Terror, Collossal Caves, Hulk, Sorcerer of Claymorgue Castle, Bored of the Rings, Quest of the Holy Grail, Magicians Ball, Snowball, Return to Eden, Worm in Paradise, Emerald Isle, Red Moon, Price of Magik, Seabase Delta, Mindshadow, Ten Little Indians, Circus, Waxworks, Perseus and Andromeda, Escape from Pulsar 7, Gremlins, Robin of Sherwood, Secret of St Brides, Fourth Protocol, Pirate Adventure
Phil Symonds, 29 Goliath Close, Roundshaw, Wallington, Surrey, SM6 9HN

Message from Andromeda
Stuart Whyte, 53 Ridgeway Road, Timperley, Altrincham, Cheshire, WA15 7HL

All Level 9 adventures, Brawn Free, Classic Adventure, Forest at the Worlds End, Jewels of Babylon, Mindshadow, Never Ending Story, Qor, Smugglers Cove, The Boggit, Trial of Arnold Blackwood, Castle Blackstar, Dun Darach, Heroes of Karn, Message from Andromeda, Mordons Quest, Project Volcano, Seas of Blood, Souls of Darkon, The Hobbit, Warlord
Joan Pancott, 78 Radipole Lane, Weymouth, Dorset, DT4 9RS.
Tel: (0305) 78 4155

Mindshadow, Never Ending Story, Espionage Island, The Hobbit, Price of Magik, Message from Andromeda, Heroes of Karn, Return to Eden
Rod Dunlop, 43 Sutherland Avenue, Pollokshields, Glasgow, G41 4ET

Never Ending Story, Message from Andromeda, Eye-Spy, Mindshadow, Subsunk, Seabase Delta
Paul Berrecloth, 48 Aldsworth Road, Victoria Park, Cardiff, CF5 1AA.

Programming with the Pilg...

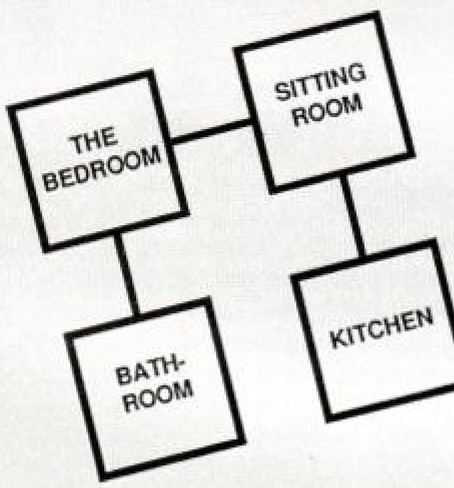
This month we take a brief look at storing locations and the information needed to link them together. We also look at using bits rather than whole bytes to 'flag' information – and using the logical operators AND and XOR to process them.

We've looked briefly at the internal structure of a typical adventure program. Now let's prepare ourselves for the next step: programming our own game. We'll start by looking at the way data – about locations, objects, and characters – is stored in the program. Then later on we can look at the routines that manipulate the data and, by interacting with the player, allow you to play the game.

If you're an accomplished programmer, you may find some of this month's copy a little basic (in the Basic sense). However it's important to take things very much from the bottom up; otherwise problems may arise later. Also, as you'll see this month and next, some of the ways of representing data in a game in Basic are also useful with machine-code (or high-level languages).

The first thing to do is see how we can go about setting up the 'adventure world' in which our game is going to take place. Of course by the time you've reached this point, you should have already given considerable thought to the subject of your game – the plot, the puzzles, the map and so on.

The Pilg could go on forever about this creative side of adventure writing, but since this series is really about programming rather than about the search for inspiration, I'll stop right here. Suffice it to say that the first thing you need to do is draw a map and, having done that, decide how the different locations might be stored in a 'location data table' for later use by the program. We'll use as an example (both here and throughout this series) a mini-adventure with only four locations. We'll call these locations the bedroom, the sitting-room, the bathroom, and the kitchen. Here's our map...



Notice that each room is numbered and that the possible routes between the rooms are clearly marked. You can, for example, move South or West from the sitting-room, but only North from the bathroom. Later on we'll return to this map, add objects to the rooms, and mark the starting position of the player. But first let's look at how we can represent these locations and the connections between them in our program.

One solution to this might be to store all the location descriptions in a string array. If you're unfamiliar with arrays, then you should check out the relevant sections in your Amstrad manual before going any further. For example, we could DIMension an array LOCATIONS to the appropriate size and then read the descriptions into the array from a DATA statement, like this:

```
1000 DIM location$(3)     'space for location descriptions
1010 FOR x=0 to 3
1020 READ location$(x)    'description data into array
1030 NEXT x
1040 DATA "the bathroom", "the sitting room",
     "the bedroom", "the kitchen"
```

If we included a routine like this in the initialisation sequence of our program, then from then on, whenever a player arrived in Room 3, for example, we could easily select the appropriate description from the array and print it on the screen. In our example above, Room 3 would be "the bedroom", stored in LOCATIONS(2) – remember that an array has subscripts starting at 0, so LOCATIONS(2) is the third element of the array, not the second as the subscript 2 might lead you to imagine.

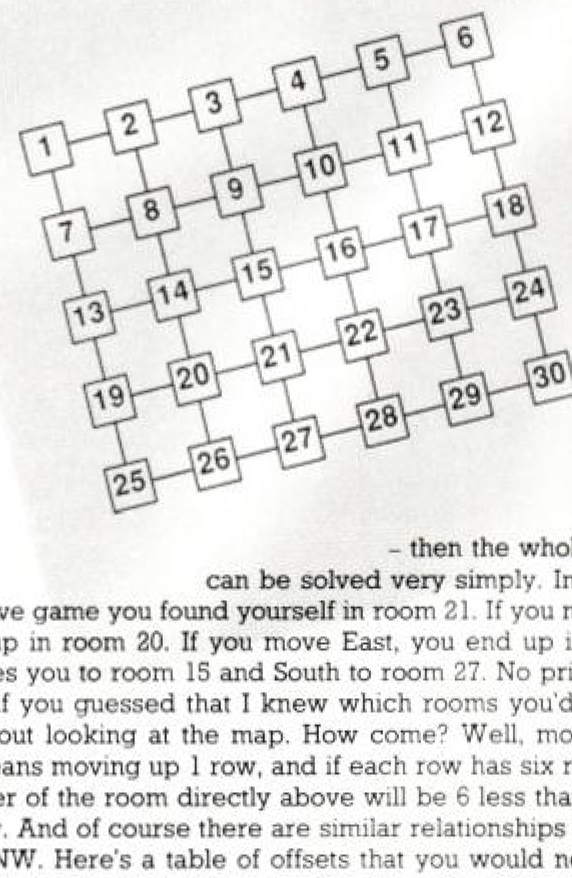
Of course, you don't have to use an array if you don't want to. You could simply leave the location descriptions stored in a DATA line and then get the program to cycle through them until it finds the right one. In the following simple example, the variable PPOS would already have been set to hold the number of the location the player is currently occupying. Whenever the description for for this location is required, the routine reads data from line 1030 until it finds the right one:

```
1000 FOR location = 0 to PPOS
1010 READ location$
1020 NEXT location
1030 DATA "the bathroom", "the sitting room",
     "the bedroom", "the kitchen"
```

The loop terminates as soon as the variable LOCATION has been incremented to match the variable PPOS (player's position), at which point the relevant description will be stored in LOCATIONS, ready for printing. The disadvantage of this method of course (apart from speed) is that if you wanted to change any of the location descriptions during the course of play, you'd have to alter the contents of the DATA line or the number of the location (liable to cause confusion), which isn't so easy as changing the contents of the element of an array.

Storing location descriptions is obviously pretty simple, but of course there's more to a location than its description. Let's take a look at some methods of storing other 'location data'.

The most obvious need is for a way of storing the relationships between the rooms – ie. a list of the different exits and entries together with their destinations. The way this is done will depend very much on the way in which you wish to map your adventure. For example, if you can get away with planning your game around a simple design like this –

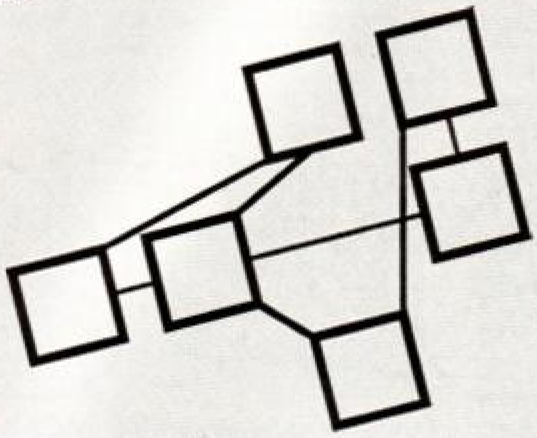


– then the whole problem can be solved very simply. Imagine that in the above game you found yourself in room 21. If you move West, you end up in room 20. If you move East, you end up in room 22. North takes you to room 15 and South to room 27. No prizes will be awarded if you guessed that I knew which rooms you'd end up in even without looking at the map. How come? Well, moving North simply means moving up 1 row, and if each row has six rooms, then the number of the room directly above will be 6 less than the room I'm in now. And of course there are similar relationships for SE, NE, SW, and NW. Here's a table of offsets that you would need to add

to a room number to move in a particular direction, where *n* is the number of rooms on each row of the grid:

Direction	Offset
N	$-n$
S	$+n$
E	+1
W	-1

NE, SW, SE, NW are simply treated as double movements; so NE, for example, would involve first adding $-n$ and then adding 1 to the start location number. Calculating new location numbers on a map such as the one in Diagram 2 is therefore pretty easy, but what happens if you want your map to look like this?



Obviously in this case we can't simply move from location to location by taking the direction and applying a constant formula. We also need to know whether movement in a particular direction is possible – and if so, where it takes us. The only way out here is to store a set of data for each location, indicating where each exit leads to.

Suppose we have 100 locations in our game with each location having a maximum of eight possible exits leading N, S, E, W, U, D, I, O (the last two being for 'In' and 'Out'). In this case we would have to implement a 2-dimensional array with 100 × 8 elements. Each element could hold a location number, indicating where the player would end up if he moved in one of the eight directions. If an array element was set to zero, then we might use this to indicate that movement in that direction was not possible.

As is usually the case, there are many different ways you could set about storing 'exit data'. Here's another method, which is worth looking at because it introduces the concept of using bits (rather than bytes) to store data. Consider the problem of storing the 'exit status' of a location – that is, the data which tells us in which directions movement is possible. For example, supposing that in our mini-adventure – mapped out in diagram 1 – we find ourselves in the bathroom and want to move East to the kitchen, how can we store the information that a move in that direction is not possible? We could of course use an array as mentioned above, but this would take up an awful lot of memory because we would have to set aside one array element for every possible direction, resulting in a minimum of eight bytes for each location.

Let's imagine that for each location we set up a series of variables with the names N, S, E, W, U, D, I, and O. For each location we'll give these variables a value of 1 if a move in that direction is valid and a value of zero if it's not. For the sitting-room in our mini-adventure, therefore, the variables would be defined as follows:

N 0
S 1
E 0
W 1
U 0
D 0
I 0
O 0

You don't need to make a huge imaginative leap to see that we could represent the status of these eight variables with a single 8-bit binary number, as follows:

0 1 0 1 0 0 0 → 01010000 binary = 5 decimal

A single 8-bit number (in this case 5 decimal) may therefore be used to store the exit status of any location. To find out which exits are possible, all we have to do is convert the number to its binary equivalent and test the relevant bit positions to see if they're set to 1 or to 0. The easiest way of doing this is to use the logical operator AND (see your Amstrad manual). The first thing to do is to assign the following codes to any directions input by the player:

North 128
South 64
East 32
West 16
Up 8
Down 4
In 2
Out 1

Using this code, if a player decides to move North, then his input will be coded as 128 or 10000000 binary. If ANDing the input code with the 'exit code' for the current location returns zero then we know that movement in the requested direction is not possible. If, on the other hand, it returns the input code, then we can go ahead and move accordingly. Here's a couple of examples:

Current location: The Bedroom (in our mini-adventure)
Possible Exits: South, East
Exit code: 01100000
Player inputs: West, coded as 16 decimal, 00010000
01100000 AND 00010000 = 0
therefore 'You can't move in that direction'

Current location: The Bathroom
Possible exits: North
Exit code: 10000000
Player inputs: North, coded as 128 decimal, 10000000
10000000 AND 10000000 = 10000000 = 128 decimal
therefore 'You go North...'

The obvious benefit of this method is that we need only one byte for each location to store the exit data. We still need, of course, to store information about which room we end up in after moving in a certain direction, but the system just outlined can be usefully used where a simple two-dimensional map is used. Furthermore, we can easily change the exit data at any time to allow movement in a new direction. The binary format enables us to carry out this change with a simple formula that uses the logical operator XOR as follows:

new exit code = old exit code XOR code for new direction to be added (eg 128 for North)

So, to add an exit leading South from the Bathroom, we would execute:

Exit code = 128 XOR 64

which would give us a new exit code of 192, or 11000000 binary, indicating possible exits to North and South. One possible catch here is that if you use this formula by mistake to add an exit that already exists, then the exit will disappear – but providing you're careful this works to our advantage because we can use the same formula to close off an exit if we so desire.

You might well need to keep track of other location-related data in the program, such as whether a particular place is in darkness, whether there's a closed door blocking the way, and so on, but as a general rule all such information can be stored in a similar manner to the methods we've looked at.

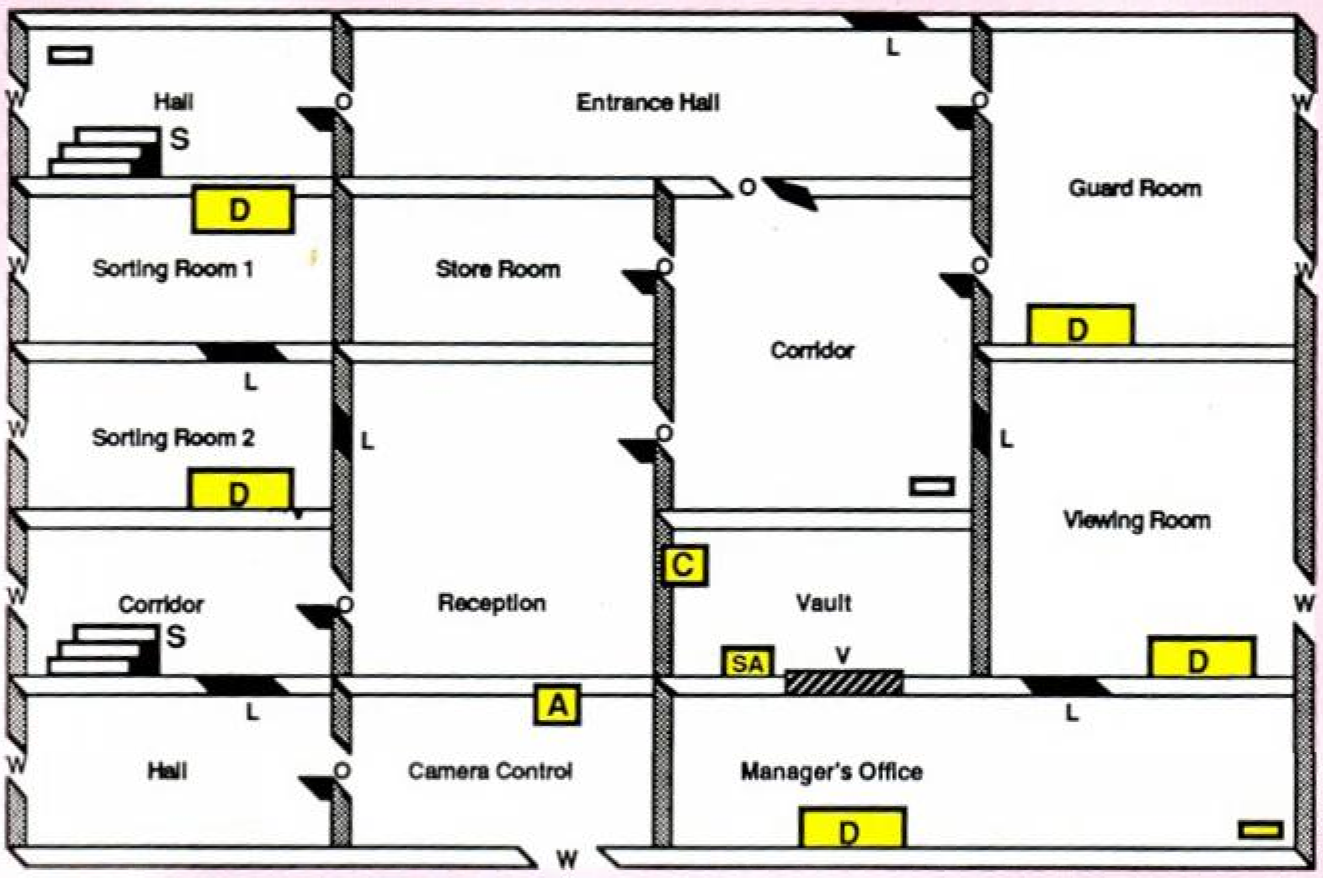
This month we've only scratched the surface of data representation, but the idea of using bits rather than bytes to store information may be new to some of you – it's important because we'll be using it a lot. Many of the points here will become clearer – and be expanded upon – as we get further into the project.

Of course apart from locations we'll also need a few objects, and perhaps even a character or two. The data for these is contained – surprise, surprise – in the object and character data tables. We'll examine these further next month and – with luck – introduce you to decision trees which we had hoped to look at here but have had to postpone due to shortage of space.

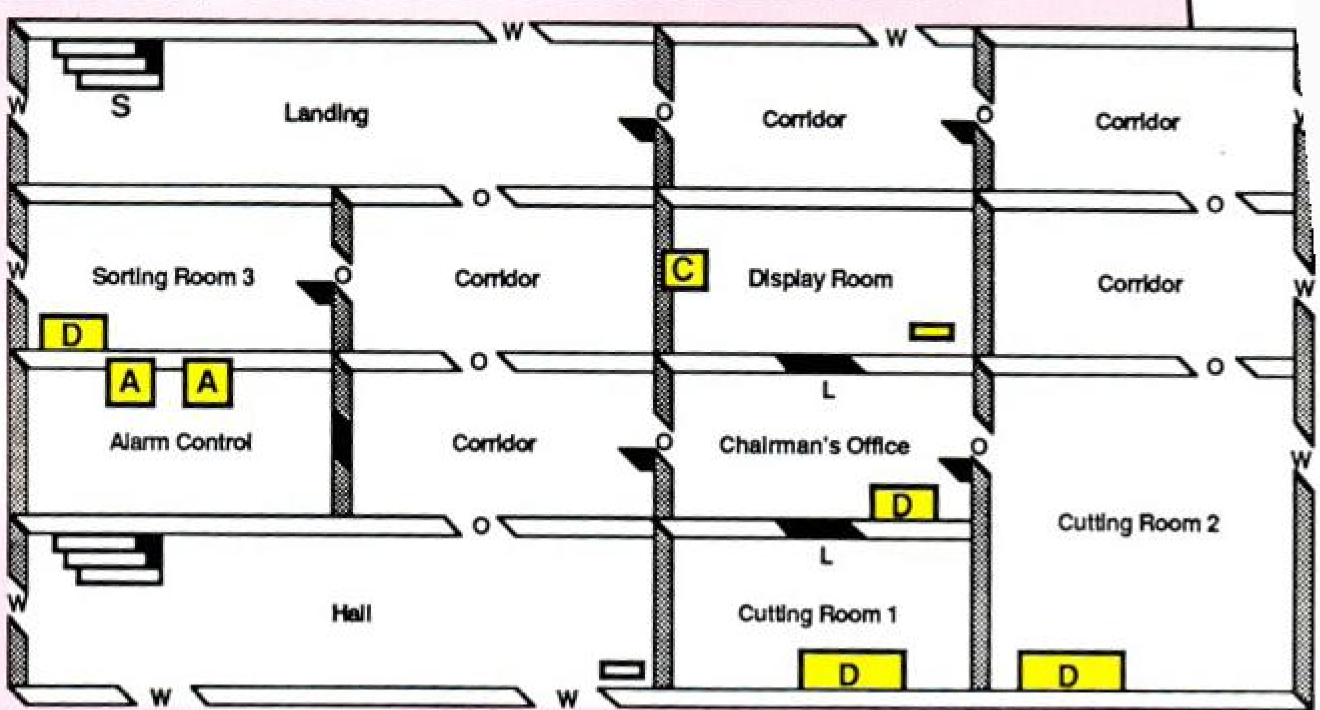
Fear not! All will be revealed in time!

THEY $TOLE A MILLION

An Amstrad Action map, compiled with the help of Tigress Designs Limited



Building 3 / Ground Floor



First Floor

Level Three playing tips

1. Map the guard's route and timings carefully.
2. Work out the camera sequence and timings.
3. If one of the team is performing a lengthy task, make sure a guard doesn't walk through or a camera activate while he's doing it.
4. Don't try to knock out the guard who watches the cameras.
5. Check the desks for things worth stealing.

Symbol	Meaning	Symbol	Meaning
▭	Camera	S	Stairs
L	Locked Door	D	Desk
O	Open Door	SA	Safe
V	Vault Door	C	Cabinet
W	Window	A	Alarm Box

FIRELORD

START

SPELLS 1 2 3

PLACES WITH FIRE

PLACES TO TRADE O

LOCATIONS FOR DIRE



STORE

QUEEN

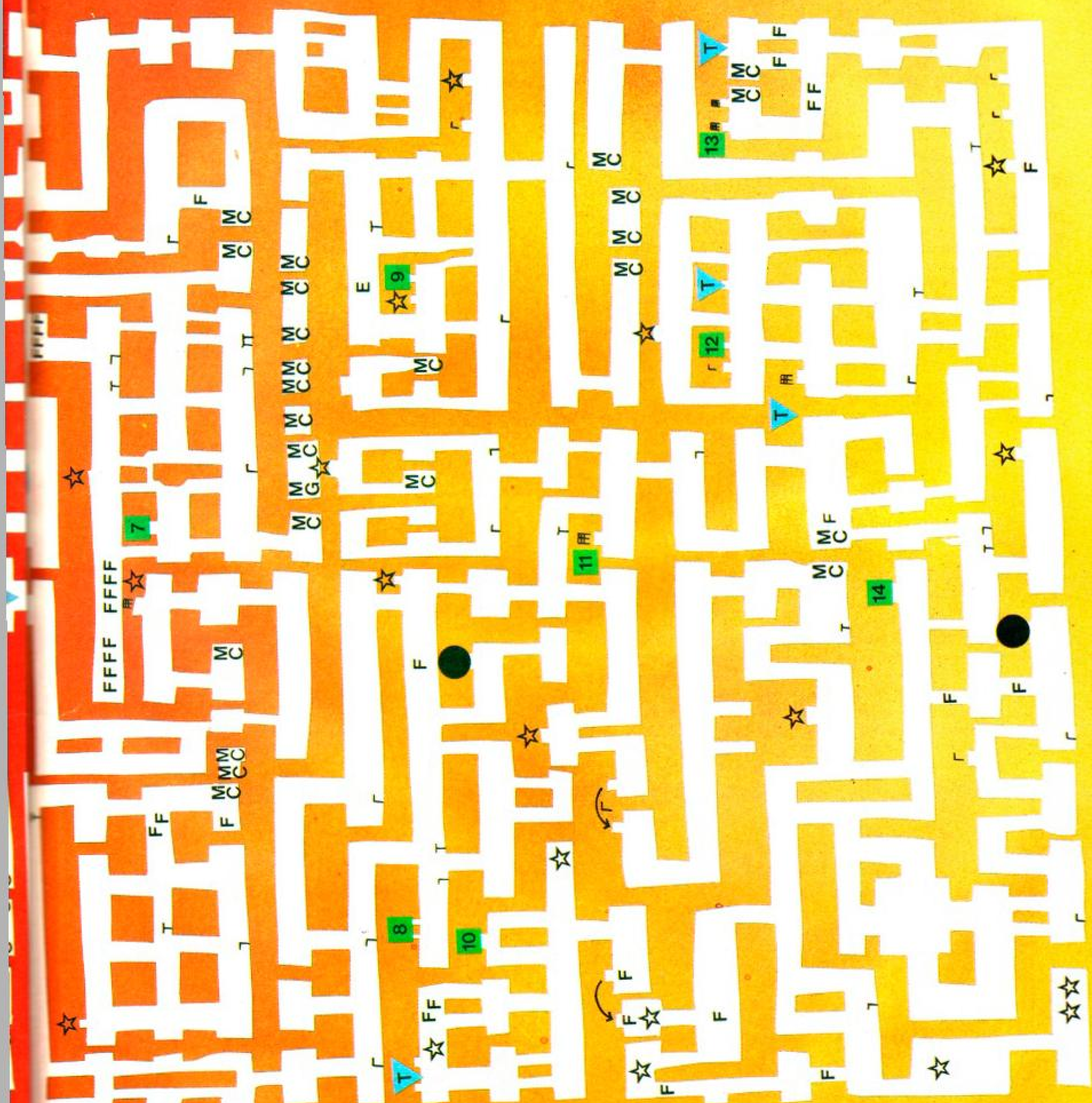
EXTRA LIVES

INFORMATION

4 5 6 7 8 9 10 11 12 13 14

JECTS

CTIONS



MAPPED BY J SMITH

CHEAT MODE



Bob Wade checks out your tips, pokes and game-busting ploys. The best ones could win an entire issue's *AA* Raves! So why not send *your* latest gem to: Cheat Mode, *Amstrad Action*, Somerton, Somerset, TA11 7PY.

Spot the bodge

One or two little errors crept in last month for which we apologise, but they weren't too disastrous. The *Herbert's Dummy Run* poke continued its jinxed run because it should have ended at line 90. Lines 100 onwards were from the *Trailblazer* poke and how they got there is a closely guarded secret between the production editor and our typesetting machine. Ignore lines 100 onwards and the poke will work.

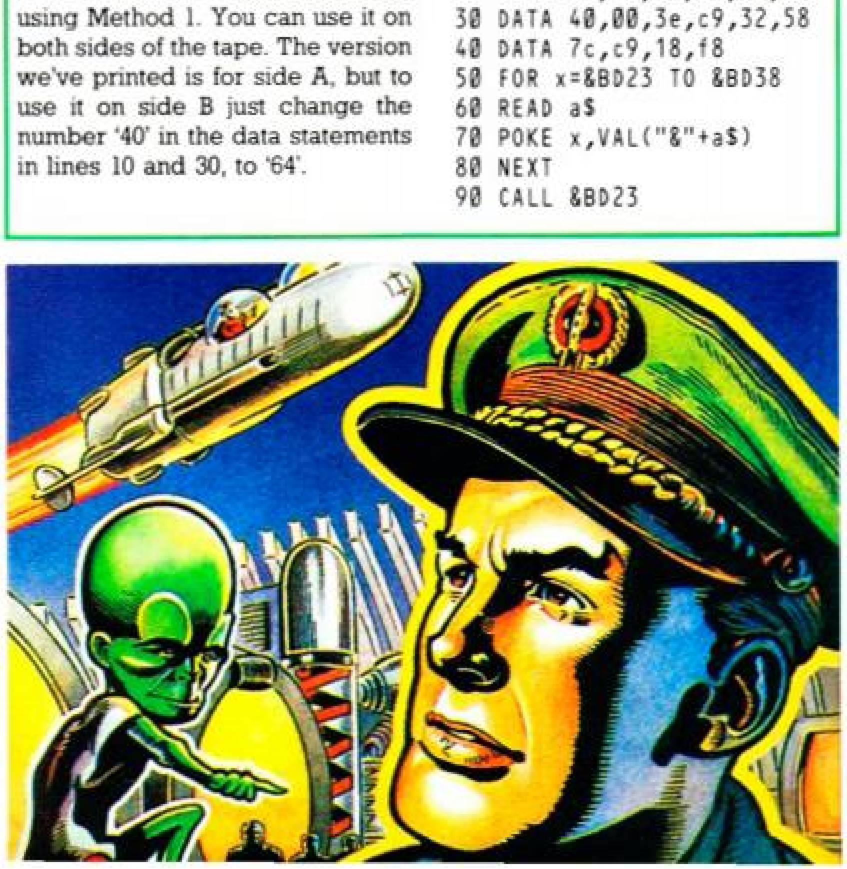
The next poke to suffer from a similar mysterious event was *Contraption*. The two pokes printed were exactly the same except for some line-number changes and slight re-arrangement of the lines. Both should work but I hope we didn't confuse you too much.

Back in the November issue it appears out typesetting machine tried to confuse you again (or was it my typing?), in the *Storm* poke. Line 160 of Phil Howard's poke started `IF y()...` when it should have started `IF y<>...` A subtle but important difference.

DAN DARE PILOT OF THE FUTURE

Phil Howard of Mapperley has an infinite-lives poke for Virgin's arcade adventure which is entered using Method 1. You can use it on both sides of the tape. The version we've printed is for side A, but to use it on side B just change the number '40' in the data statements in lines 10 and 30, to '64'.

```
1 'Dan Dare Tape
2 'Amstrad Action March 87
10 DATA 21,40,00,11,00,10
20 DATA 3e,16,cd,a1,bc,c3
30 DATA 40,00,3e,c9,32,58
40 DATA 7c,c9,18,f8
50 FOR x=&BD23 TO &BD38
60 READ a$
70 POKE x,VAL("&"+a$)
80 NEXT
90 CALL &BD23
```



AVENGER

This neat little poke from Peter Featherstone of Leeds allows you to call on Kwon as many times as you like. You've still got to remember to do it but it makes things much easier. Entered using Method 1.

```
1 'Avenger Tape
2 'Amstrad Action March 87
10 MODE 1
20 FOR f=48896 TO 48902
30 READ a:POKE f,a
40 NEXT
50 MEMORY 8191:LOAD"!"
60 POKE 8323,0
70 POKE 8324,191
80 CALL 8192
90 DATA 175,50,193,108
100 DATA 195,219,101
```

From Richard Doughty of Kingston-upon-Thames and Sanjay Wijayatilake of Wembley Park come the names of all the Infiltrator and Overlord pilots that you'll encounter.

Infiltrator	*Overlord*
Seth	Buzz
Whipple	Rambou
Geoff	Komie
Naples	Weasle
Gomer	Zippy
Haymish	Boomer
Gizmo	Scum
Dweezil	Rattle

INFILTRATOR

KAT TRAP

While RpM was off on his holiday he kept busy by poking a couple of games, and here's another one. It's entered using Method 1 and can give up to 255 lives as well as removing all the aliens.

```
1 'Kat Trap Tape
2 'Amstrad Action March 87
10 MODE 2:INK 0,0:BORDER 0
20 PRINT"K A T T R A P   P
   O K E S"
30 PRINT:PRINT:PRINT"Inser
  t KATTRAP cassette and p
  ress a key..."
40 CALL &BB18:PRINT"Please
   wait loading..."
50 MEMORY &5000:LOAD"!KATT
  RAP",&6000:PRINT
60 POKE &6054,&CD:POKE &60
  55,0:POKE &6056,&1
70 INPUT"How many lives (0
  -255) ? ",a$
80 IF VAL(a$)<0 OR VAL(a$)
  >255 OR a$="" THEN 70
90 PRINT:PRINT"Remove all
  aliens (Y/N) ? ";
100 b$=UPPER$(INKEY$):IF
  b$="" THEN 100
110 IF b$="Y" OR b$="N" TH
  EN 120 ELSE 100
120 PRINT b$
130 FOR t=&F0 TO &10B:READ
   c$
140 POKE t,VAL("&"+c$):z=z
  +VAL("&"+c$):NEXT t
150 IF z<> 1566 THEN PRINT
  "ERROR IN DATA":STOP
160 IF b$="Y" THEN POKE &1
  02,&C9
170 POKE &107,VAL(a$):CALL
   &F0
180 DATA 21,00,60,11,00,03
  ,01,00,02
190 DATA ED,B0,C3,00,03,00
  ,00,00,3E
200 DATA 11,32,f4,37,3E,05
  ,32,1B,1E
210 DATA C9
```

GAUNTLET™

A bumper bundle for the Christmas Mastergame – not only pokes for both disk and cassette versions, but a playing tip to give infinite play as well. The playing tip has been sent in by many of you and is surprisingly simple.

Start playing with one player and when he is nearing death press the magic button to create a second player. When the first player dies you can carry on with the second until he is close to death, at which point the first player can be reactivated. You can carry on alternating between characters, and consequently between joystick and keyboard control, as many times as you like. Two players can use the tip in exactly the same way, recreating the character indefinitely, but they have to watch out that they don't die simultaneously causing the game to end.

The first of the pokes is from Tony Hoyle of St Annes and is for the cassette version. It's entered using Method 1 and gives infinite energy.

```
1 'Gauntlet Tape
2 'Amstrad Action  March 87
10 MEMORY &3FFF
20 x=&4000:c=0
30 READ a$
40 IF a$="xx" THEN 120
50 c=c+VAL("&"+a$)
60 POKE x,VAL("&"+a$)
70 x=x+1:GOTO 70
80 READ d
90 IF d=c THEN CALL &4000
100 PRINT"Error in data"
110 END
120 DATA 06,00,11,00,c0
130 DATA cd,77,bc,21,70
140 DATA 01,cd,83,bc,21
150 DATA 1b,6a,22,c9,02
160 DATA 21,24,40,11,70
170 DATA 01,01,08,00,ed
180 DATA b0,3e,6b,c3,ef
190 DATA 01,3e,c9,32,95
200 DATA 9b,c3,00,84,xx
210 DATA 4033
```





The second poke is from our own RpM and is for the disk version of the game. Type it in and save it to a disk other than the game disk. Insert the game disk into the drive, with the write-protect tab off. Run the poke and follow the on-screen prompts to load the game. Note: This poke does alter the game disk, and although the program contains checks to avoid you making any typing errors you should take care typing it in. Having entered the pokes the game will retain the changes when loaded up again, but they can be changed back by running the poke again.

```
1 'Gauntlet Disk
2 'Amstrad Action March 87
10 MODE 2:INK 0,0:BORDER 0:
   GOSUB 290
20 PRINT"G A U N T L E T
   P O K E S":PRINT:PRINT
30 PRINT"Prevent Generators
   creating the enemy? (Y/N)";
40 a$=UPPER$(INKEY$):IF a$
   <>"Y" AND a$<>"N" THEN 40
50 PRINT a$:PRINT
60 PRINT"Stop yourself dying
   when health reaches zero?
   (Y/N)";
70 b$=UPPER$(INKEY$):IF b$<>
   "Y" AND b$<>"N" THEN 70
80 PRINT b$:PRINT
90 PRINT"Turn enemy invisible
   -- only Phantoms will now
   cause damage (Y/N) ? ";
100 c$=UPPER$(INKEY$):IF c$<>
   "Y" AND c$<>"N" THEN 100
110 PRINT c$:PRINT
120 PRINT"Turn yourself invis
   ible -- the enemy is still
   attracted by you (Y/N) ? ";
130 d$=UPPER$(INKEY$):IF d$<>
   "Y" AND d$<>"N" THEN 130
140 PRINT d$:PRINT
150 PRINT:PRINT"Is this to
   your satisfaction (Y/N) ?"
160 e$=UPPER$(INKEY$):IF e$
   <>"Y" AND e$<>"N" THEN 160
170 IF e$="N" THEN RUN
180 PRINT:PRINT"INSERT THE GA
  UNTLET DISK INTO DRIVE A WI
  TH THE WRITE-PROTECTION OFF"
190 PRINT:PRINT"Press a key
  when ready...":CALL &bb18
200 CALL &4000:a=&613a:b=&613d
  :c=&611b:d=&611e:e=&cd
210 a=&613a:b=&613d:c=&611b
  :d=&611e:e=&cd
220 IF a$="Y" THEN POKE a,0:
  POKE a+1,0:POKE a+2,0 ELSE
  POKE a,e:POKE a+1,&b5:POKE
  a+2,&8c
230 IF b$="Y" THEN POKE b,0
  :POKE b+1,0:POKE b+2,0 EL
  SE POKE b,e:POKE b+1,&20:
  POKE b+2,&94
240 IF c$="Y" THEN POKE c,0
  :POKE c+1,0:POKE c+2,0 EL
  SE POKE c,e:POKE c+1,&f0:
  POKE c+2,&a2
250 IF d$="Y" THEN POKE d,0
  :POKE d+1,0:POKE d+2,0 EL
  SE POKE d,e:POKE d+1,&13:
  POKE d+2,&87
260 CALL &401f
270 PRINT:PRINT"POKES NOW S
  AVED TO DISK":PRINT:PRINT
  "Press a key to play game"
280 CALL &bb18:|CPM
290 FOR z=&4000 TO &4064:RE
  AD y$:POKE z,VAL("&"+y$)
300 x=x+VAL("&"+y$):NEXT z
310 IF x<>7668 THEN PRINT"
  ERROR IN DATA":STOP ELSE
  RETURN
320 DATA 21,5d,40,cd,d4,bc
  ,22,5e,40,21,61
330 DATA 40,cd,d4,bc,22,62
  ,40,21,00,60,1e
340 DATA 00,16,18,0e,11,df
  ,5e,40,c9,21,00
350 DATA 60,1e,00,16,18,0e
  ,11,df,62,40,21
360 DATA 00,70,1e,00,16,1c
  ,0e,11,df,5e,40
370 DATA 3e,29,87,32,0c,70
  ,d6,02,32,0d,70
380 DATA d6,03,32,0e,70,1e
  ,00,16,1c,0e,11
390 DATA 21,00,70,e5,d5,df
  ,62,40,d1,e1,0e
400 DATA 12,df,62,40,c9,84
  ,00,00,07,85,00
410 DATA 00,07
```

Poke methods

Here is how to input the majority of Cheat Mode pokes. The instructions for each poke tell you which of the two different methods to use. If you have a 664 or 6128, first type `|tape`.

Method 1

Rewind the game tape to the beginning. Now type in the poke listing. Then type `RUN` and press the Enter key. (Don't use the key marked CTRL or Control; that would stop the poke from working.) Press the Play key on the cassette deck, then any key on the main keyboard – the spacebar will do nicely. The tape should now start to play through in the normal way.

Method 2

For this method you have to skip the first bit of the game program. To do that, start by rewinding the game tape to the beginning. Now type in the listing. Then type `CAT` and press Enter. Start the tape by pressing Play and then any key. Then watch the screen.

Soon you'll get the message `Found` *`something`* `block 1`. It doesn't matter what the *something* actually is; this will vary from one game to another. If the Cheat Mode instructions just tell you to skip the first block, you should stop the tape here.

If the instructions tell you to skip several things, stop the tape when the `Found` message comes up for the last thing you're trying to skip.

Once you've stopped the tape, press Escape, type `RUN` and press Enter. Now press Play on the tapedeck and any key on the keyboard to start the tape running.

Here's a compilation of tips sent in by Daniel Webster of Buckingham and Andrew Holmes of Grimsby. First up is a list of which monsters you'll encounter on each of the levels and which weapon kills them quickest.

Level 1: Ghosts – fire or water. Beetles – fire.
Level 2: Killer sacks – fire. Winged demons – lightning.
Level 3: Killer sacks. Birds – water. Snakes – fire.
Level 4: Winged demons. Skeletons – water.
Level 5: Sorcerers – fire or electricity (2 shots). Skeletons.
Level 6: Winged demons, snakes and skeletons.
Level 7: Skeletons, killer sacks and sorcerors.
Level 8: All 8 enemies.

1. There is only one key on level one; make sure you get it.
2. Visit all the chests you can as it increases your rating and provides essential keys.
3. Avoid water, which saps energy very fast.
4. Use weapon spells economically or you'll run out.
5. Always keep on the move; the only place you can afford to stand still is on a pentagram.
6. When killing skulls create a Golem and send him in front of you so that he takes the blast of all the fireballs. When the Golem dies get as close to middle of the skull as possible and cast the chaos spell.
7. If you're a long way from a pentagram and energy is running low then use a chaos spell to replenish it since it's more sensible to survive than to try to save it for killing skulls.
8. Always collect as many keys as possible; you'll need them. The optimum route requires 17 keys.

DRUID

We've also got a couple of pokes – one for the cover cassette level 2, and one for the game proper. The first, from Tony Hoyle of St Annes, is for the cover cassette, giving infinite everything. Use Method 2 to position the tape just before the file called DRUIDSCR.BIN. If you've transferred the demo to disk using last month's listing then the poke should also work.

```
1 'Druid Cover Tape
2 'Amstrad Action March 87
10 MEMORY 8191
20 MODE 0
30 BORDER 0
40 FOR a=0 TO 15
50 READ b
60 INK a,b
70 NEXT
80 DATA 0,26,0,9
90 DATA 18,16,2,11
100 DATA 14,6,7,15
110 DATA 12,10,13,26
120 LOAD"!druidscr.bin",
  &C000
130 LOAD"!play.bin"
140 POKE &42AA,0
150 POKE &2A9D,0
160 POKE &2C68,0
170 POKE &3129,0
180 POKE &2A8A,0
190 POKE &288D,0
200 POKE &2AE1,0
210 FOR n=&29D4 TO &29DA
220 POKE n,99
230 NEXT
240 CALL &2000
```

The second poke, for the full version of the game, was sent in by Richard Nicholson of Norwich. It's entered using Method 1 and also gives you infinite-just-about-everything.

```
1 'Druid Tape
2 'Amstrad Action March 87
10 GOTO 260
20 DATA 2a,38,bd,22
30 DATA 60,08,2a,01
40 DATA bb,22,38,bd
50 DATA 3e,f7,32,0e
60 DATA bc,3e,c3,21
70 DATA 1f,08,32,30
80 DATA 00,22,31,00
90 DATA c3,00,64,2a
100 DATA 60,08,22,38
110 DATA bd,cd,37,bd
120 DATA 3e,f7,32,ba
130 DATA 0f,3e,c3,21
140 DATA 3e,08,32,30
150 DATA 00,22,31,00
160 DATA cd,00,23,c3
170 DATA 00,0f,af,32
180 DATA 01,2c,32,ee
190 DATA 30,32,8a,28
200 DATA 32,49,26,32
210 DATA e1,28,3c,32
220 DATA c8,27,32,ca
230 DATA 27,32,cb,27
240 DATA 3e,c9,32,51
250 DATA 45,c3,3e,1e
260 MEMORY 12345
270 LOAD"druid1",&6400
280 FOR a=&800 TO &85F
290 READ b$:b=VAL("&"+b$)
300 POKE a,b
310 NEXT a
320 CALL &800
```

Radzone

Here's a tip for the Mastertronic game from Lindsey Till of Chaddesden. When leaving a screen press Control, Shift and Copy at the same time and a question mark should appear. Type in a number from 1 to 42 and you will be transported to the corresponding room.



Back to Reality

Andrew Holmes of Grimsby and Ian Curry of Kingswinford have both come up with some tips that should help you overcome the Mastertronic arcade adventure.

1. Methane + nitrogen = mixed gases.
2. Mixed gases + diamond powder = primordial cells.
3. Primordial cells + incubator = incubating cells.
4. Incubating cells + cloning medium = cloning cells.
5. Atom stabilizer gets cosmic rays.
6. Cloning cells + cosmic rays = antimatter.
7. Immortoport and teleport keys are used under a star.
8. Use plasma pulse keys on pulse locks.
9. Compact disk drive + VDU + compact disk rom = data retrieval system.
10. Control with [exits the data-retrieval system.

If that still doesn't give you enough help then here's a poke from Nicholas Pavis of Rugby to give you infinite lives and remove all the aliens. Use Method 2 to get past Unnamed file block 1 and Unnamed file blocks 1-8 (ie. skip the loading screen).

```
1 'Back to Reality Tape
2 'Amstrad Action March 87
10 MODE 1:BORDER 0:INK 0,0:
  INK 1,26:INK 2,15:INK 3,6
20 OPENOUT"d"
30 MEMORY &12FF
40 LOAD""
50 POKE &79B2,0
60 POKE &9274,&C9
70 CALL &7611
```



Space Hawks

A poke from Jonathan Tregoiing of Langport, Somerset, for the ageing Amsoft game. It's entered using Method 1 and gives infinite lives. Note: the game crashes after you finish it – well, you didn't really want to play it again did you?

```
1 'Space Hawks Tape
2 'Amstrad Action March 87
10 OPENOUT"":MEMORY 19999
20 LOAD"code",20000
30 POKE 23261,0:POKE 21360
  ,0
40 FOR n=1 TO 4:READ A
50 POKE a,0:NEXT n
60 DATA 24064,26725,26865,
  26876
  70 CALL 20000
```

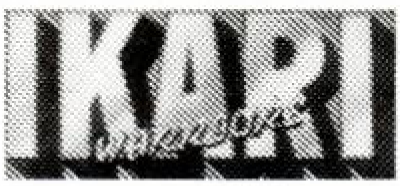


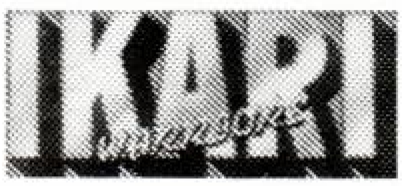
If you've been wondering how to get hold of a cloaking device, Mark Varley of Fallowfield has the answer. To get a cloaking device you must destroy a ship which already has one, which appears as a flashing spacecraft. You have to be at least Dangerous before the ship will appear. After destroying it you have to scoop up the cargo canister that remains. The Y key toggles the device on and off, but because it drains your energy it will switch itself off when energy gets low.



Ikari Warriors

This Method 1 poke for the Elite game comes from Nicholas Pavis of Rugby. It gives several different pokes which can be deleted if you want. Line 70 gives infinite fire, line 80 gives no enemy soldiers, line 90 stops bullets killing you, line 100 lets you walk through explosions, and line 110 keeps explosions on the screen.






```
1 'Ikari Warriors Tape
2 'Amstrad Action March 87
10 SYMBOL AFTER 256
20 OPENOUT"d"
30 MODE 0:BORDER 2
40 MEMORY 4799
50 LOAD"warriors"
60 FOR a=0 TO 2
70 POKE &1C82+a,0
80 POKE &1CA3+a,0
90 POKE &1CA6+a,0
100 POKE &1CAF+a,0
110 POKE &1CC7+a,0
120 NEXT
130 FOR a=0 TO 17
140 READ a$
150 POKE &FFD0+a,VAL("&"+
  a$)
160 NEXT
170 CALL &FFD0
180 DATA f3,31,00,00,21,c0
  ,12
190 DATA 11,00,01,01,00,bf
  ,ed,b0
200 DATA c3,00,01
```

Wizard's Lair

A Method-1 poke for the Bubble Bus arcade adventure, but I'm afraid to say I've mislaid the name and address of the person who sent it in. If you contact us we'll credit you in a future issue, although you weren't one of the prizewinners.



```
1 'Wizard's Lair Tape
2 'Amstrad Action March 87
10 FOR n=0 TO 9
20 b=0
30 FOR q=0 TO 7
40 READ a$:a=VAL("&"+a$)
50 x=(&a000+n*8+q):POKE x,
  a:b=b+a
60 NEXT q
70 READ a$:c=VAL("&"+a$)
80 IF b<>c THEN PRINT"Erro
  r in line";n*10+90:END:E
  LSE NEXT n
90 MODE 1:PRINT"Start Wizar
  d's Lair Tape":CALL &a000
100 DATA 3e,01,cd,6b,bc,21
  ,41,a0,335
110 DATA 06,05,11,00,4b,cd
  ,77,bc,267
120 DATA 21,00,4b,11,00,55
  ,3e,02,112
130 DATA cd,83,bc,cd,7a,bc
  ,21,46,476
140 DATA a0,06,05,11,00,01
  ,cd,77,201
150 DATA bc,21,00,01,11,bf
  ,49,3e,235
160 DATA 02,cd,83,bc,cd,7a
  ,bc,af,4c0
170 DATA 32,f5,26,32,6c,12
  ,c3,00,2c0
180 DATA 01,4c,61,69,72,32
  ,4c,61,268
190 DATA 69,72,31,00,00,00
  ,00,00,10c
```

Space Harrier

A Method 1 poke from Alan Wilson of Falkirk that gives infinite lives for the Elite shoot-em-up.

```
1 'Space Harrier Tape
2 'Amstrad Action March 87
10 MEMORY 35999
20 MODE 0
30 FOR x=0 TO 15
40 READ y:INK x,y
50 NEXT x
60 BORDER 0:CLS
70 LOAD"!screen",49152
80 OPENOUT"a":MEMORY 949:
  CLOSEOUT
90 LOAD"!block",950
100 POKE &D74,0
110 CALL 950
120 DATA 0,26,6,0,0,9,2,25
  ,15,3,16,10,13,21,14,20
```

Nodes of Yesod

Phil Howard's managed to give you infinite lives on the Odin game and although he reckons there must be a less contrived way of doing it I think there'll be many people very grateful for it. Entered using Method 1.

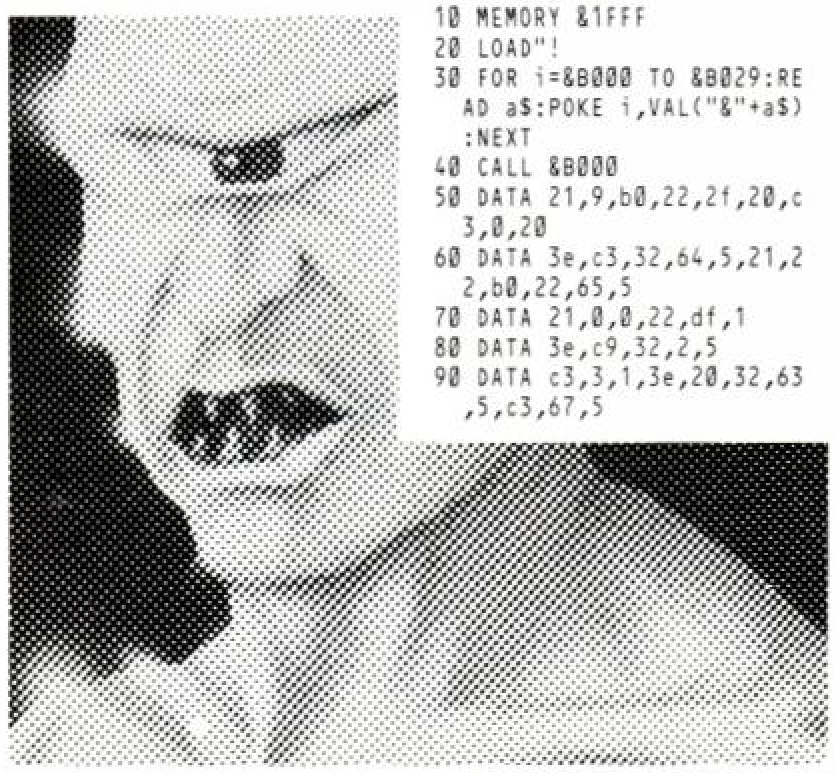
```
1 'Nodes of Yesod Tape
2 'Amstrad Action March 87
10 DATA 00,32,46,93,3a,00,
  be,3c,32,00,be
20 DATA fe,52,28,02,14,e9,
  e5,21,3e,90,36
30 DATA 18,21,8d,3d,36,32,
  23,36,46,23,36
40 DATA 93,e1,14,e9,21,8e,
  90,36,c3,23,36
50 DATA 33,23,36,be,c3,4b,
  90,cd,00,8c,af
60 DATA 32,a7,4e,c3,91,90,
  21,c3,25,22,34
70 DATA bd,21,be,18,22,36,
  bd,3e,fb,32,38
80 DATA bd,21,c3,01,22,8d,
  3d,3e,be,32,8f
90 DATA 3d,c3,00,3d
100 y=0:FOR x=&BE00 TO
  &BE5B
110 READ a$:a=VAL("&"+a$)
120 POKE x,a:y=y+a
130 NEXT
140 IF y<>&2263 THEN PRIN
  T "Error":END
150 MEMORY &3000:LOAD"nod
  es"
160 MODE 1:CALL &BE3D
```



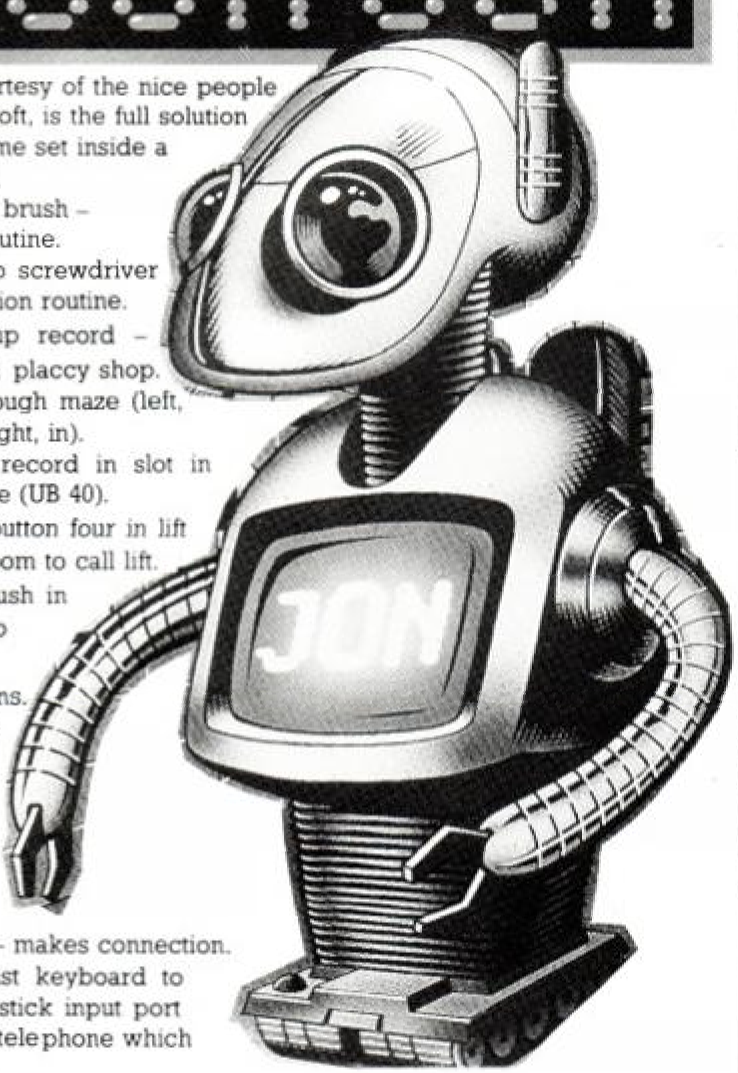
FROST BYTE

Our very active Danish readers have been busy, and here's a poke for the Mikro-Gen game from Jens Hansen of Skjern in Denmark. It's entered using Method 1.

```
1 'Frost Byte Tape
2 'Amstrad Action March 87
10 MEMORY &1FFF
20 LOAD"!
30 FOR i=&B000 TO &B029:RE
  AD a$:POKE i,VAL("&"+a$)
  :NEXT
40 CALL &B000
50 DATA 21,9,b0,22,2f,20,c
  3,0,20
60 DATA 3e,c3,32,64,5,21,2
  2,b0,22,65,5
70 DATA 21,0,0,22,df,1
80 DATA 3e,c9,32,2,5
90 DATA c3,3,1,3e,20,32,63
  ,5,c3,67,5
```



ICON JON



Here, courtesy of the nice people at Mirrorsoft, is the full solution to the game set inside a computer.

1. Pick up brush – service routine.
2. Pick up screwdriver – protection routine.
3. Pick up record – scratched placcy shop.
4. Go through maze (left, left, in, right, in).
5. Insert record in slot in dole office (UB 40).
6. Press button four in lift control room to call lift.
7. Use brush in joystick to clean connections.
8. Pick up jar.
9. Use screw – driver in curly cable (no clue) – makes connection.
10. Go past keyboard to get to joystick input port and take telephone which appears.
11. Use telephone in rom-select room and press button 1 to select modem.
12. Back through maze to go into rom (modem).
13. Pick up identity card in telephone booth.
14. Use identity card in slot in instruction store to enter new room.
15. Pick up plastic in memory bank.
16. Pick up battery in hardware store (next to ROM select).
17. Chat to Chip about Z80, reviewer, Amstrad.
18. Give battery to Chip in return for LED.
19. Get duster from monitor and rub plastic.
20. Chat to Andy about weather, garden, reviewer.
21. Give Andy plastic in return for talisman (cross).
22. Pick up transistor in bug's lair.
23. Use transistor in amplifier room to enter dodgy cable.
24. Pick up letter A in cable.
25. Take A to ROM select room and select printer by pressing key four.
26. Enter ROM room (new printer).
27. Take edge connector from printer and microscope from paper feeder.
28. Hit edge connector with file (turns to gold).
29. Combine gold and jam (bread+jam=sandwich).
30. Give Andy jam butty in return for spade.
31. Dig with spade in ZX81 room (under X).
32. Take disk and insert in rom-select room.
33. Press number 6 to select disk rom.
34. Take the machine-code (weight).
35. Use machine-code in bric-a-brac shop to enter mousehouse.
36. Take the cheese in the mouse-hole.
37. Wave cheese in front of eyes on tablescape. Mouse will take cheese in exchange for pot of glue.
38. Go to lift control room and take the fish, examine with microscope – they're soles.
39. Combine glue with soles. This enables you to go through dodgy cable with insulated feet.
40. Read the sign in the next room (the brain) with the number on it.
41. Go to rom-select room and press button 1 (modem).
42. Enter the modem rom and dial the number given in the brain in the telephone booth.
43. Enter the door at the heart of the modem.

ICON JON

How to win an ENTIRE ISSUE'S Rave software

All you have to do is produce an excellent map, poke or playing tips. The best solution will win a copy of every Rave and the Mastergame from the issue in which the solution is printed. The number of games will vary of course but you can expect at least £50 worth of software and some months over £100. We also give out five runners-up prizes every month – the Mastergame or one of the Raves in that issue.

It's been an excellent month for pokes but this month's winner is **John Smith** for his *Firelord* map. Runners-up are **Tony Hoyle** for *Gauntlet*, *Druid* and *Heartland* pokes, **Andrew Holmes** for *Druid* and *Back to Reality* tips, **Phil Howard** for *Dan Dare*, *Equinox* and *Nodes of Yesod* pokes, **Nicholas Pavis** for *Back to Reality* and *Ikari Warriors* pokes, and **Richard Nicholson** for his *Druid* poke.

Heartland

Here's an excellent poke from Tony Hoyle of St Annes that gives infinite energy and time and lets you advance to the next level without collecting any pages. It will work with both tape and disk versions of the game and is entered using Method 1.

```
1 'Heartland Tape and Disk
2 'Amstrad Action March 87
10 MODE 0:BORDER 26
20 FOR n=0 TO 15
30 READ a:INK n,a:NEXT
40 OPENOUT"s"
50 MEMORY &1FFF
60 LOAD"!heartpic.bin"
70 LOAD"!kim.bin"
80 POKE &500D,0
90 POKE &2ED6,0
100 POKE &2D60,0
110 CALL &2990
120 DATA 26,0,1,26,13,12
130 DATA 24,25,9,18,2,14
140 DATA 20,3,6,15,10
```

Equinox

A Method-1 poke for the version of the Mikro-Gen game that appears on the *Five Star Games* compilation tape. It comes from Phil Howard of Mapperley, who adds that Mikro-Gen gets his vote as most unreliable loader in the business. Do I sense a battle coming between Mikro-Gen and Firebird to see who's worst?

```
1 'Equinox (Five Star Game
  s Tape)
2 'Amstrad Action March 87
10 DATA 21,69,2a,36,c9,c3
20 DATA 00,03
30 FOR x=&BE00 TO &BE07
40 READ a$
50 POKE x,VAL("&"+a$)
60 NEXT:MEMORY &1500
70 LOAD"equinox":MODE 1
80 POKE &2030,&BE
90 CALL &2000
```

GLIDER RIDER

Now here's a poke to savour. It removes the fence from around the base, allowing you to explore more freely with the bike. You've got Miguel Rocha of Portugal to thank for this one (which works on the disk version).

```
1 'Glider Rider Disk
2 'Amstrad Action March 87
10 OPENOUT"d":MEMORY &3FF:
  MODE 1
20 LOAD"glider.bin"
30 FOR i=&300 TO &325:READ
  a$
40 a=VAL("&"+a$):POKE i,a:
  NEXT
50 CALL &300:CALL &400
60 DATA 21,00,80,7e,fe,09,
  ca,20,03,fe
70 DATA 0a,ca,20,03,fe,0b,
  ca,20,03,fe
80 DATA 0c,ca,20,03,23,3e,
  a0,bc,d2,03
90 DATA 03,c9,3e,00,77,c3,
  18,03
```

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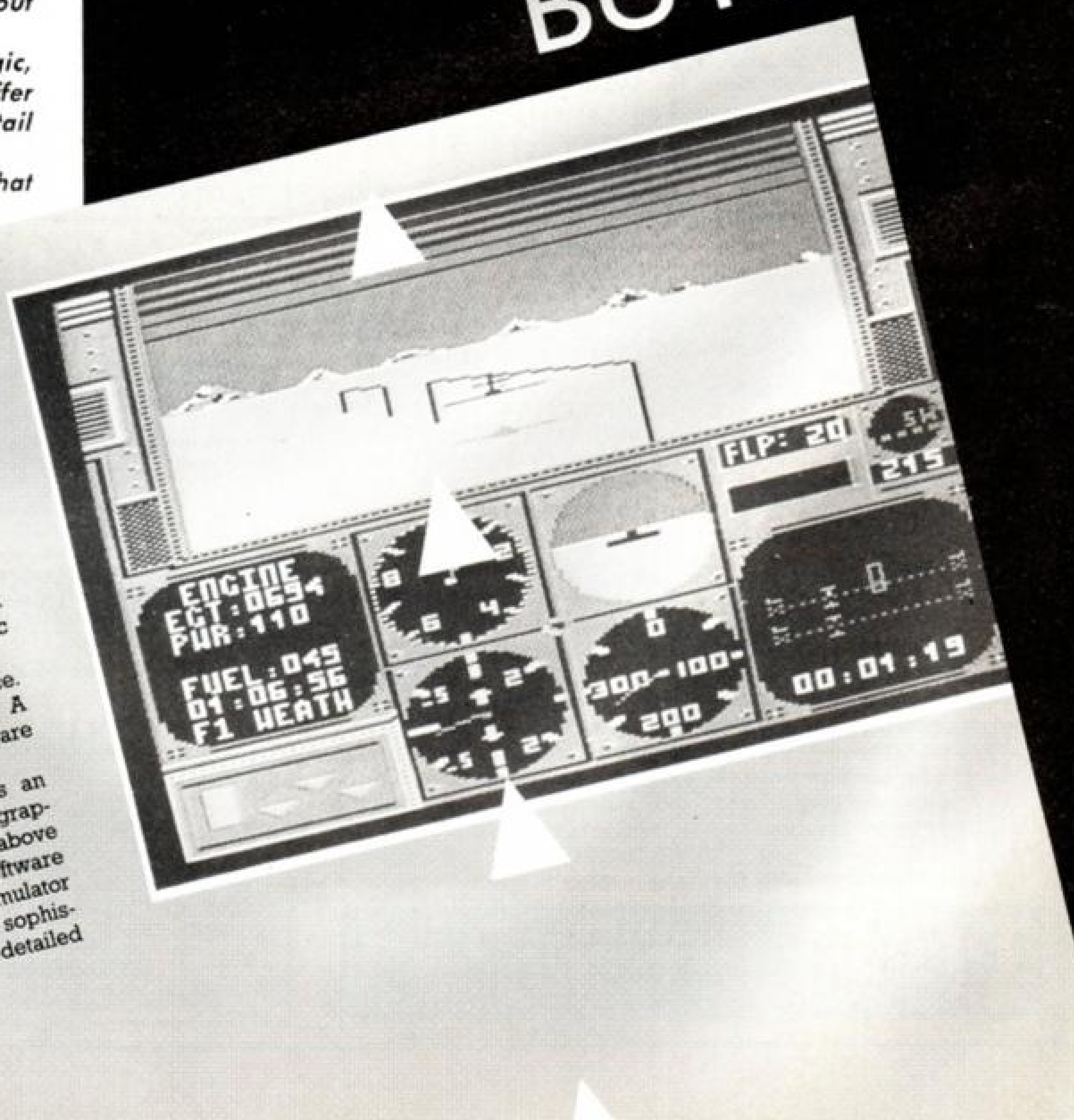
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ABOUT PENDOWN

PenDown was developed originally on the BBC micro as a word-processor for children. The idea was to have a program which you could use immediately, and the program certainly proved a big hit with kids at schools around the country. But not just with kids. Adults too found its straightforward approach appealing and extremely easy to learn. Converted now (superbly) to the Amstrad CPCs it seems an ideal family purchase.

Despite the fact the program has an excellent manual, much of its operation is obvious from word go. You decide where you want to start typing, move the cursor to the right point with the arrow keys and then just type away, the text automatically flowing to fill the page width you've selected.

The wide range of editing functions are accessed from simple pull down menus. These include highly original options such as a dictionary to help you select the correct spelling of a word. Other powerful word-processing functions such as search-and-replace are also supported.

THE NEW SYSTEM

Regular users of AA Special Offers will notice that the ordering system has changed slightly this month. To make things simpler you now use a single form for items on special offer AND other mail order items. This means special offer items now count toward a free gift, so they're better value than ever.

To find the form, turn on two pages.

HOW TO ORDER

Just turn on two pages to our Mail Order Section and use the form printed there. OR dial 0458-74192 and give your credit card and ordering detals to our very friendly answering machine.

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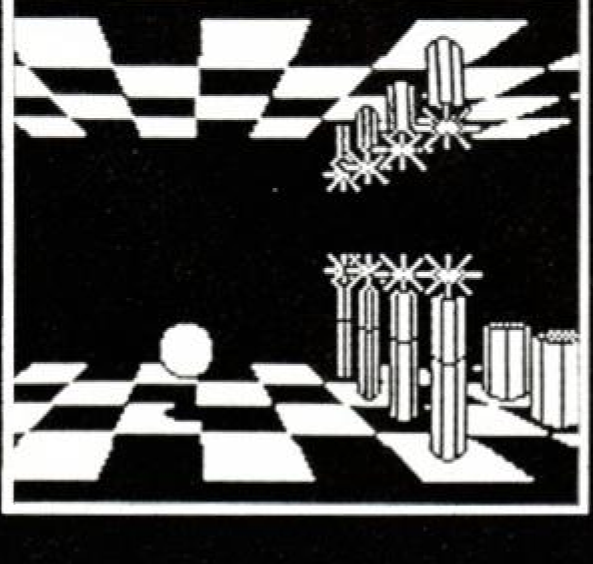
IMPOSSABALL

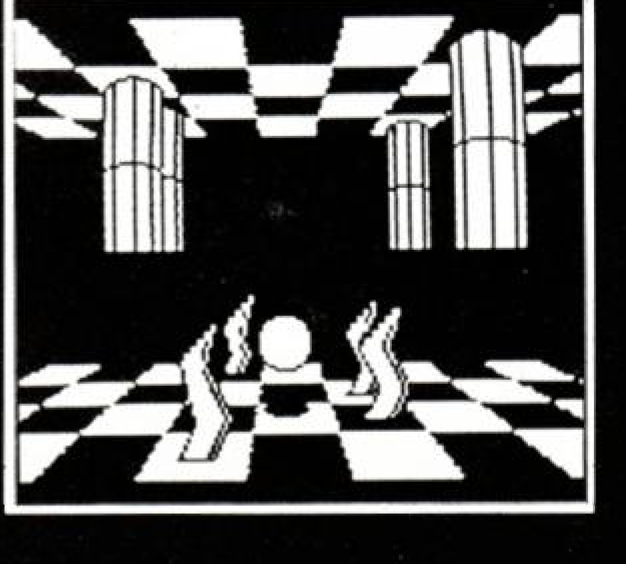
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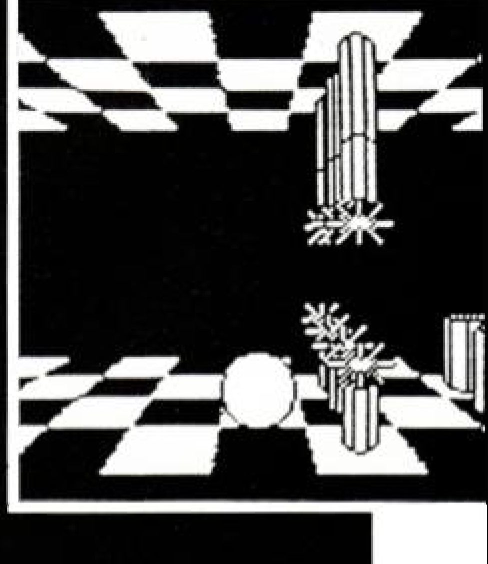
Here it is, the stunning AA Mastergame from Hewson. A program that's so original, so addictive, so impossaball, it had our reviewers reaching for the superlatives.

Imagine trying to bounce a ball through an ingeniously-constructed scrolling 3D landscape. Imagine working out a route to avoid cruelly-placed spikes and evil lightning bolts. Imagine screaming with frustration, whooping with delight.

That's Impossaball. One of the games of 1987. It's a beauty.







FREE MASTERGAME FREE BINDER

The goodies pour in when you subscribe to Amstrad Action!

It only costs £16.50 to guarantee yourself a year's regular supply of Amstrad Action, the only magazine in Britain 100% dedicated to the Amstrad CPCs.*

And to show you how much we value your company, we're offering new subscribers an amazing bargain: your choice of any one of six fabulous Mastergames on cassette or disk absolutely free! If you choose the cassette version of your game, you can also have a gorgeous, high-quality Amstrad Action binder to keep your magazines in perfect nick right through the year!

The subscription price covers all postage and packing plus the extra cover price of any 1987 special issues (there were two in 1986!). It also guards against future price rises. When you add to all that the value of the goods you're getting free, and the satisfaction of knowing you won't miss an issue in 1987, it becomes quite a tempting offer, don't you think?

Forget the PCW 8256! Forget the PC 1512! Give your CPC a treat for the New Year! Join the double-A team.

* This price is for the UK and EIRE (sterling only please). The price for other European countries is £22.50. Readers outside Europe should write to us for a quote.

Send this form to:
AA Subscriptions, The Old Barn, Somerton, Somerset, TA11 5AH
Offer closes March 15th, 1987
If your order reaches us by Tues February 24 your subscription will start with the April issue, otherwise it will start with the May issue.

SUBSCRIPTION FORM

Yes, I want to take out a 12-month subscription to Amstrad Action and receive a free Mastergame.

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Address ______________________

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Tick the name of the FREE MASTERGAME of your choice.

☐ GAUNTLET ☐ REVOLUTION
☐ HEAVY ON THE MAGICK ☐ IMPOSSABALL
☐ SPINDIZZY ☐ DRUID

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Pick any one of these titles on cassette or disk! (cassette users get a binder too!)

IMPOSSABALL
Hewson's masterpiece of addiction
Mastergame March 87
RRP £8.95 cass, £14.95 disk

SPINDIZZY
Best AA rating ever.
Mastergame March 86.
RRP £9.95 cass, £14.95 disk

REVOLUTION
Dazzling Vortex originality.
Mastergame November 86.
RRP £9.95 cass, £14.95 disk

GAUNTLET
Pure gold from US Gold.
Mastergame Christmas 86.
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DRUID
Firebird classic.
Mastergame December 86.
RRP £7.95 cass, £12.95 disk

HEAVY ON THE MAGICK
Gargoyle's greatest adventure.
Mastergame July 86.
RRP £9.95 cass, £14.95 disk



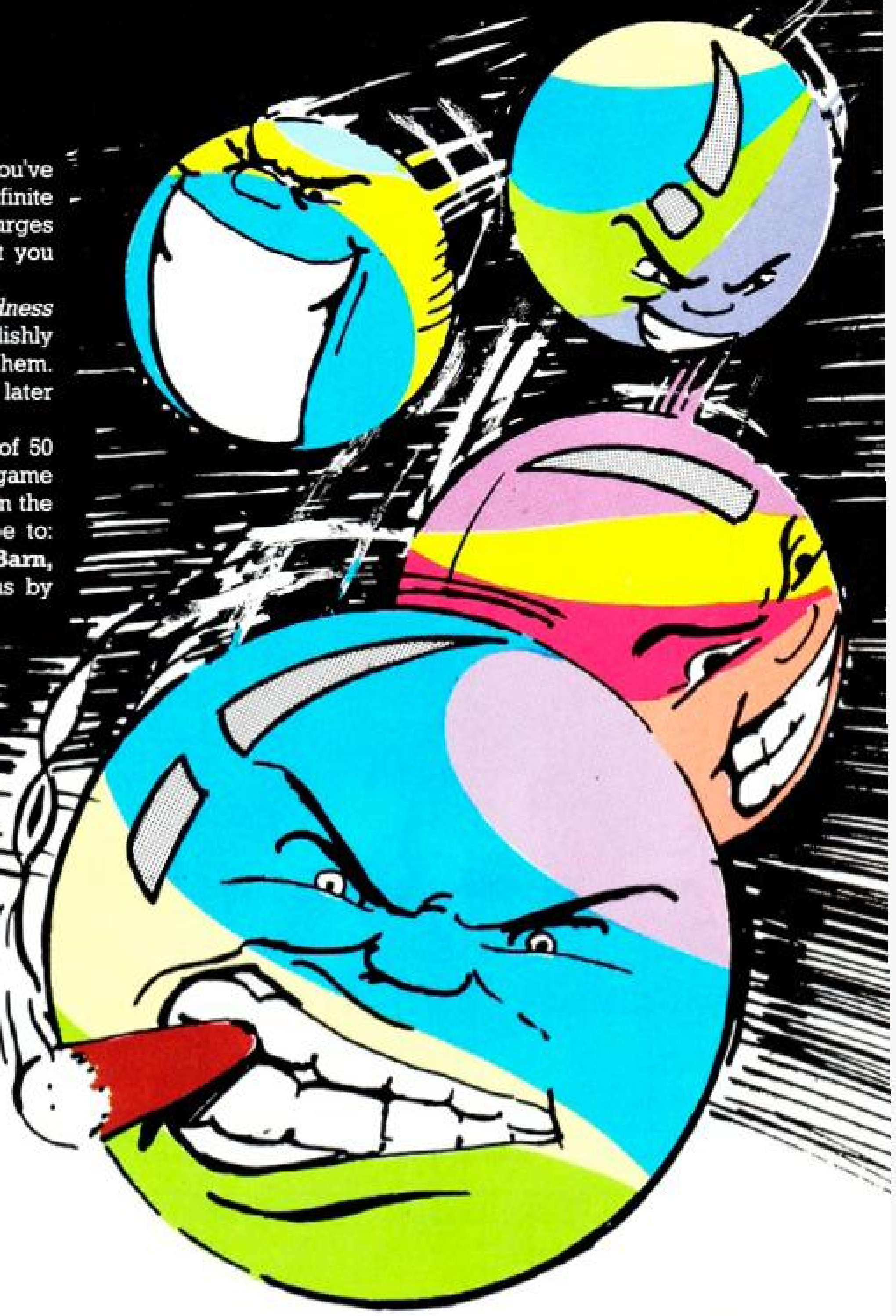
MARBLEOUS

You could get on a roll with one of 50 copies of the *Marble Madness Construction Set*

Fed up with all those games which just gather dust after you've completed them? Well, what you need is something with infinite variety, something that allows you to indulge your creative urges and something where you can determine the difficulty. What you need is a copy of the *Marble Madness Construction Set*.

It allows you to construct your very own *Marble Madness* courses and try to steer a marble through your own devilishly designed challenges or, better still, torture your friends with them. The set is very easy to use and you can save your courses for later use.

All you've got to do to stand a chance of winning one of 50 copies of the game is to answer these questions about the game (the review should help you with the answers) and then send in the replies on a postcard or the back of a stuck-down envelope to: **'Marble Madness Comp', *Amstrad Action*, The Old Barn, Somerton, Somerset, TA11 7PY**. The entries should reach us by March 11.

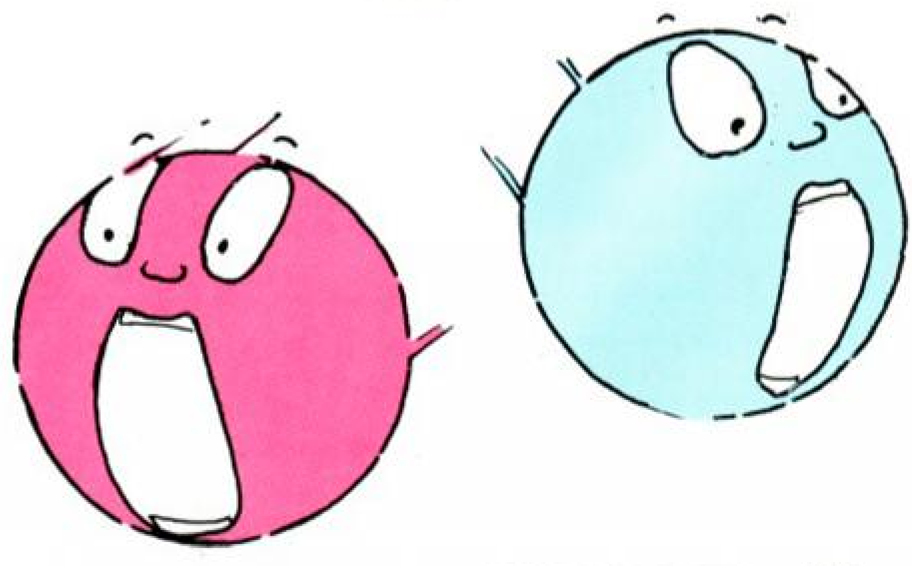


1. How many pre-programmed screens are there?
(a) 10
(b) 12
(c) 20

2. Does one of the dangers look like...?
(a) A small woolly sheep.
(b) A large, furry boot.
(c) A large woolly sock.

3. Does each screen have to be completed before...?
(a) The time limit runs out.
(b) Another marble attacks you.
(c) The next solar eclipse.

4. Which of these is an effect caused by one of the game's hazards?
(a) Being burnt.
(b) Being swallowed.
(c) Being dissolved in acid.



For details of special offers, see previous pages

Mail Order Magic!

Amstrad Action's unique service can supply all the software you need

Much of this magazine is dedicated to telling you in detail about the fantastic range of software available on the Amstrad CPC computers. But we can do more than inform you about it. We can deliver it direct to your home. All it takes is a few moments of decision making on your part, a visit to the post box or a quick phone call, and your choice of software arrives, like magic, on your doormat.

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COMPATABILITY
Unless otherwise marked, all software on these pages will run on all three Amstrad CPC machines, the 464, 664 and 6128.



■ Send this form plus payment to: **AA Mail Order, 18 Pinewood Drive, Somerton, Somerset, TA11 6JP**

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Address...

....Post code.......................

Machine owned: ☐ CPC 464 ☐ CPC 664 ☐ CPC6128

Enter the programs you wish to order in the spaces below. If you want more than six items, you should list them on a separate piece of paper.

	SOFTWARE TITLE	DISC/CASS	DISCOUNT PRICE
1	PenDown demo*	Disc	3.95
2			
3			
4			
5			
6			

Highly recommended (see p76) – please delete if not required.* **TOTAL PAYABLE ☐

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·CASS·

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Rebelstar R	1.99	1.75
Hyperbowl R	1.99	1.75
Marb Madness C.S	9.95	8.95
Xevious	9.99	8.95
A.C.E.	9.95	8.95
Bridge	12.95	10.95
Dandy	9.99	8.95
Donkey Kong	8.95	7.95
Highlander	8.95	7.95
Konami's Golf	8.95	7.95
Miami Vice	8.95	7.95
Infodroids	9.95	8.95
Legend of Kage	8.95	7.95
Batman R	8.95	6.95
Boulderdash	9.95	7.95
Bounder M	8.95	6.95
Doomdark's Rev M	9.95	7.95
Druid M	7.95	5.95
Trivial Pursuit	14.95	13.50
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Pro Tennis	9.99	8.95
Space Shuttle	9.99	8.95
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PLEASE BEAR IN MIND

1. We are happy to refund your order at any time up to the despatch of the goods. But because of the possibility of copying software, no refund or exchange to an alternative piece of software can be given after this point. Software which does not load may be returned either to us or directly to the software house concerned for a replacement cassette or disc containing the same software.

2. We try to be as accurate as we can with details of price, compatibility and disc availability, but cannot accept liability for any errors that creep in.

3. The fact that a program is listed on this page does not always guarantee it is available now. We sometimes are able to review software BEFORE it has actually been put on general release. If there is likely to be a significant delay in supplying a program we will notify you.

FIRST CLASS SERVICE

Amstrad Action Mail Order is personally supervised by long-suffering Sue Taylor, the woman who distributes more sacks of goodies than Santa Claus himself.

Normally Sue despatches all orders within three working days of receiving your order. All packages are sent by first class mail. If for some reason she is unable to obtain a particular piece of software you would be informed of the reason for the delay within 21 days.

OVERSEAS PRICES

Readers in the Republic of Ireland can order any of these goods at the same rates as British readers, provided that payment is made in pounds Sterling (check with your bank for details). If you wish to pay in Irish pounds, you must add a IR3.50 surcharge IN ADDITION to allowing for the current exchange rate – that's what it costs us to pay in your cheques or postal orders.

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If you own Access or Visa credit cards you can place your order by telephone at any time of day or night, seven days a week. Just dial 0458-74192 and be ready with your name and address, credit card number and expiry date, and the details of the software you wish to order.

STOP PRESS
BT strike could delay hotline installation. If unobtainable ring 0458 74011.

TAKE YOUR PICK FROM THIS LIST!

R = AA RAVE
M = MASTERGAME

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4.99	10.95
-	-
-	-
-	-
-	-
4.99	13.50
4.95	13.50
5.95	14.50
4.99	13.50
4.95	13.50
4.95	13.50
4.95	13.50
4.95	13.50
-	-
4.95	13.50
4.95	12.95
4.95	12.95
3.95	10.95
3.95	10.95
4.95	11.95
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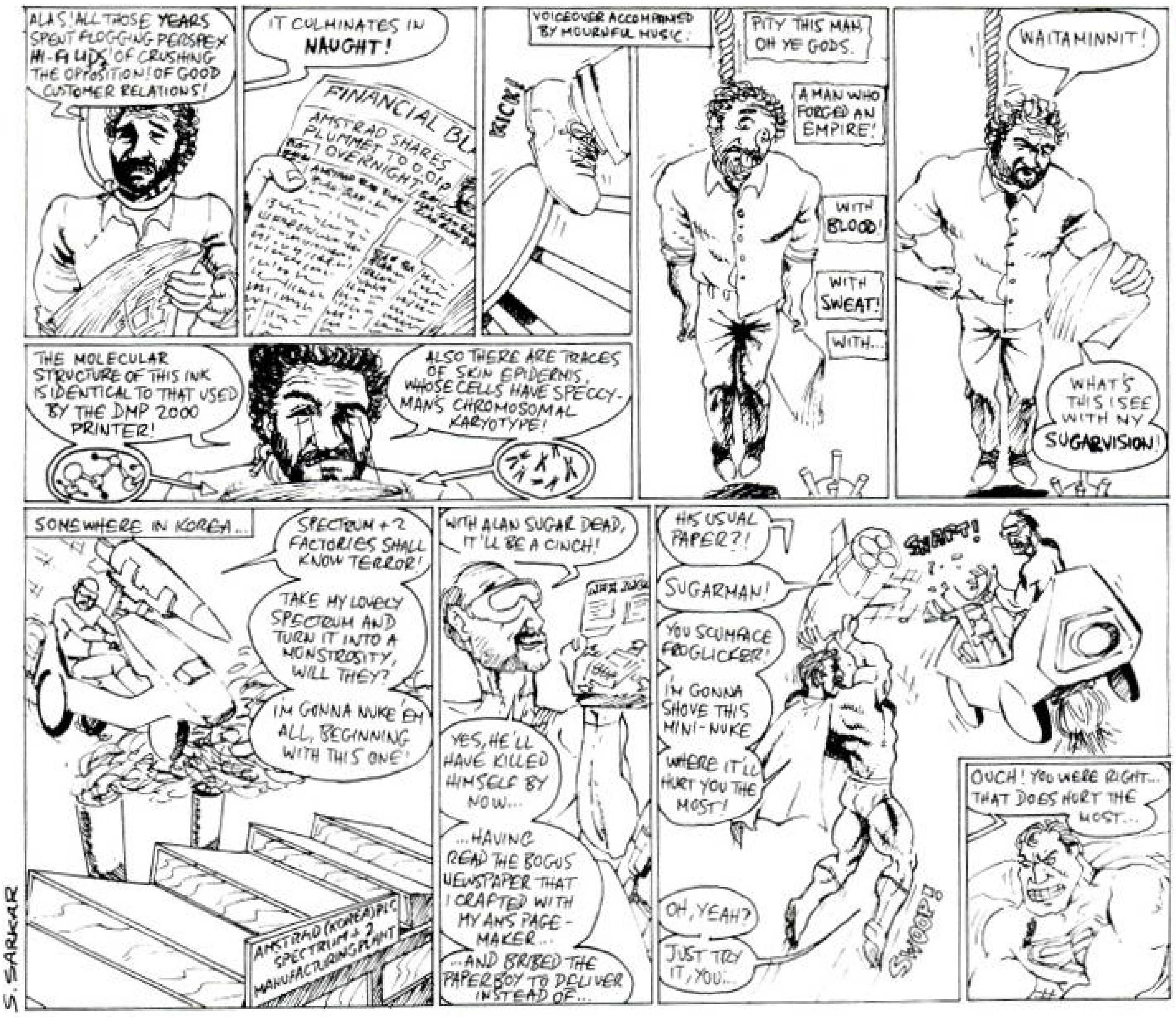
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Knight Tyme M	2.99	2.75	-	-
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Sorcery Plus R	-	-	13.95	10.95
Spindizzy M	9.95	7.95	14.95	11.95
Starstrike II M	9.95	7.95	14.95	11.95
Tau Ceti R	9.95	7.95	14.95	11.95
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Heartland R	9.95	7.95	14.95	11.95
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GAMES	CASS RRP	CASS Our price	DISC RRP	DISC Our price
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SERIOUS S'WARE (All titles below have won hot reviews in AA)	CASS RRP	CASS Our price	DISC RRP	DISC Our price
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Adv. Music System	-	-	29.95	24.95
The Art Studio (6128 only)		-	19.95	16.95
Electronic Music Utility	14.95	12.95	19.95	16.95
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Melbourne Draw	14.95	13.50	24.95	21.95
Pagemaker (6128 only)	-	-	49.95	44.95
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Masterfile 6128	-	-	39.95	34.95

REAR VIEW

A new page looking at the lighter side of computing and starring an old favourite – Sugarman.



PREDICTIONS

Belatedly we present some predictions for 1987 sent in by **Andrew Bruce** of Harrow.

March
Alan Sugar announces he's bought a new train set – it's called British Rail.

April
On April 1, figures appear stating Amstrad's annual turnover is £900 billion. Alan Sugar enjoys the joke: it's really £889 billion.

May
A merger is finalised between Amstrad and the Government. Monopolies commission rejects complaints about world dominance.

June
Claims are made in *The Sun* that money and power have gone to Alan Sugar's head.

July
A replacement is to be found for the Government, with a larger memory, more interfaces and better graphics.

August
The Sun goes bankrupt.

September
Computer rights to *Rocky XXIII* are sold solely for all 219 Amstrad machines.

October
Amstrad announces first truly disposable computer – they codename it the 'Spectrum'.

November
Sir Alan Sugar OBE,CBE,KBE,MBE,MP buys a 'small island just off the coast of Ireland' – it's called America.

December
Alan Sugar says he'll retire when he makes his first million – different types of computer, that is.

THINGI MIRACLE

A very intriguing publicity shot arrived on my desk from the makers of the Thingi. It demonstrates how this gadget not only holds up single sheets of paper beside your monitor, but can cope with whole magazines as well (a fact to which we can testify). The odd thing is that this miraculous device also seems to let you type an *Amstrad Action* CPC Type-In into a PCW 8256. We'd like to know if it also lets you run the slowest word-processor since slate tablets, Locoscript, on a CPC.



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